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4. Aircraft Turnaround

Revision: 6
Date: 05 December 2024

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Page	Date	Comment
12	05 December 2024	Arrival Actions have been updated to remove any contradictions. The standard arrival process is for engines to be switched off on stand. Staff shall only be given clearance to approach the aircraft once the engines have been shut down, are spooling down, and the anti-collision lights have been switched off.

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4.0 Aircraft Turnaround Responsibilities

The content of this chapter is based on *Chapter 4 – Aircraft Turnaround* of the IATA Ground Operations Manual (IGOM).

Any Standards or Procedures which are unique to DHL Operations and therefore vary from or are in addition to IGOM Standard or Procedure shall be identified by a blue background, as demonstrated by this text.

The following scenarios outline the responsibilities of Airside Supervisors at self-handled and third party-handled stations in accordance with DHLAGOM Chapter 1. The documented scenarios 'C' and 'D' are only applicable where the supervision has been formally contracted to a 3rd Party due to the absence of any local DHL representation or when there are extraordinary reasons to implement such provision. Cases such as a staff shortage due to sickness (or similar) are not considered an extraordinary reason. In these cases, it is not permitted to contract supervision to the 3rd Party ground handler on an ad hoc basis. As per Chapter 1, in cases where a DHL supervisor is required, a DHL supervisor shall be present and the responsibilities listed in scenario A or B (as appropriate) shall be applied.

Note: For the purposes of this chapter, the term "Supervisor" is interchangeable with "Turnaround Coordinator (TRC)".

4.0.1 Scenario A: DHL Supervisor at a self-handled station

At a self-handled station, the primary role of the DHL Supervisor is to lead the Team and manage and monitor the turnaround operation. He/She should be 'hands off' and only intervene when he/she identifies a problem or where a procedure is being carried out otherwise than in accordance with DHLAGOM. As the person ultimately responsible for the safe and on-time departure of the aircraft, the Supervisor shall ensure his/her team has the correct training and qualifications, equipment and knowledge to carry out their assigned activities in full compliance with DHLAGOM and any other applicable regulations.

In addition to the overall monitoring and supervision of the turnaround operation, the Supervisor shall be directly responsible for completing the following tasks:

- Act as a Safety coordinator by maintaining safe and secure processes for the duration of the full turnaround activities.
- **Manage** the safe arrival, offload, load and departure of the aircraft in full compliance with all DHLAGOM standards and procedures as well as any applicable regulations specific to that aircraft, operator or location.
- Conduct an initial briefing with the turnaround team prior to the start of the operation to discuss the plan for the turnaround and to identify any hazards, irregularities and/or non-standard procedures required for the upcoming operation.
- Assign tasks and responsibilities to individual team members if not already coordinated / communicated through local work instructions / processes by the ramp management department.
- Ensure all team members are fully compliant with PPE and security requirements prior to commencement of turnaround operations.
- Coordinate stand preparation and FOD walk.

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- Capture and document the various turnaround timings as per DHL requirements e.g. On-Blocks, first ULD off, Last ULD off etc. and record / report them to the relevant DHL department.
- On arrival of the aircraft onto the stand, notify team members when it is safe to approach the aircraft (aircraft has stopped, anti-collision beacon off, engines shut down).
- Coordinate any changes or irregularities in the off/loading procedure with NCG and/or Load Control and ensure the latest version of the Loading Instructions (GOALS or printed Load Plan) are being used whilst conducting off/loading procedures.
- Where GOALS is not in use, complete the Load Verification cross-check with both the Main Deck and Lower Deck responsible team member.
- Notify NCG of any actual, or potential, delays to aircraft departure including (but not limited to); Loading issues, damaged locks, defective GSE, aircraft damage, aircraft technical issues, poor ULD build-up or poor environmental conditions e.g. heavy rain.
- Ensure compliance with all Security procedures and processes, including aircraft sealing.
- Submit any Occurrence Reports or RCIRs resulting from any irregularities during the turnaround operation. Note: In the event of a reportable Occurrence, the DHL Supervisor shall document as much information as possible at the time of the Occurrence. The DHL Supervisor shall not leave the aircraft to submit the report if the turnaround is still in progress, the report shall either be submitted by a team member already in the office or shall be submitted by the DHL Supervisor when the turnaround activity has been completed.
- Co-ordinate the evacuation of all ground staff on board the aircraft and on the ground in the event of an emergency and inform the relevant authorities.
- Conduct debriefing with the turnaround team after the operation has been completed to discuss the turnaround performance and any irregularities that occurred.

It is important for the DHL Supervisor to maintain awareness of all the different elements of the turnaround process (including, for example, the fuelling operation) and to remain vigilant at all times. As standard practise, the DHL Supervisor shall not leave the immediate vicinity of the aircraft whilst the turnaround procedure is being carried out. The DHL Supervisor shall not carry out any tasks or activities that either removes them physically from the immediate vicinity of the aircraft or diverts their attention away from supervising the operation.

If, in exceptional circumstances, the DHL Supervisor is forced to leave the aircraft for a period of time, all turnaround procedures shall be stopped until either the Supervisor returns or a hand-over is made to another senior member of ramp staff who continues the supervision. The DHL Supervisor shall advise all ramp staff that he/she intends to leave the aircraft prior to doing so and, if a hand-over is made to a new supervisor, the new supervisor shall make him/her self known to the turnaround team.

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4.0.2 Scenario B: DHL Supervisor with a contracted 3rd party Handling Agent

Where a 3rd party ground handling agent has been contracted by DHL to perform all turnaround functions for a network aircraft, the primary function of the DHL Supervisor is to monitor the turnaround operation and to intervene only when he/she identifies a problem or where a procedure is being carried which is not in accordance with DHLAGOM. The DHL Supervisor shall not involve his/her self in any of the turnaround tasks or activities as he/she automatically takes ownership of that task and assumes liability for any errors or abnormalities that occur as a result of that task.

There are, however, some tasks which must be carried out by the DHL Supervisor when overseeing a 3rd party ground handler. These tasks are:

- Act as a Safety coordinator by maintaining safe and secure processes for the duration of the full turnaround activities.
- **Oversee** the safe arrival, offload, load and departure of the aircraft in full compliance with all DHLAGOM standards and procedures as well as any applicable regulations specific to that aircraft, operator or location while the 03rd party handling agent Team Leader/Lead/Supervisor is managing the operation under his/her own responsibility
- Conduct an initial briefing with the Team Leader/Lead/Supervisor from the ground handling company prior to the start of the operation to discuss the plan for the turnaround and to identify any hazards, irregularities and/or non-standard procedures required for the upcoming operation.
- Capture and document the various turnaround timings as per DHL requirements e.g. On-Blocks, first ULD off, Last ULD off etc. and communicate these to the relevant DHL department.
- Handover a copy of all required paperwork to the Team Leader/Lead/Supervisor such as load sheet, Load Plan and NOTOC, if applicable, unless already provided to the ground hander prior to commencement of the operation.
- Where GOALS is not in use, ensure that the Load Verification (LV) cross-check for both Main Deck as well as Lower Deck is performed by 03rd party handling Team Leader/Lead/Supervisor and support if required (at stations where LV process is applicable).
- Ensure compliance with all Security procedures and processes, including aircraft sealing.
- Conduct debriefing with the 3rd Party handling Team Leader/ Lead/Supervisor from the ground handler after the operation has been completed to discuss the turnaround performance and any irregularities that occurred.
- Submit any Occurrence Reports or RCIRs resulting from any irregularities during the turnaround operation. Note: In the event of a reportable Occurrence, the DHL Supervisor shall document as much information as possible at the time of the Occurrence. The DHL Supervisor shall not leave the aircraft to submit the report if the turnaround is still progressing, the report shall either be submitted by a team member already in the office or shall be submitted by the DHL Supervisor when the turnaround activity has been completed.

Note: If the 3rd Party handler has been contracted to complete the turnaround, it is the responsibility of the Team Leader/Lead/Supervisor of the ground hander to sign both the printed Load Plan, if applicable, and Load Sheet, as well as for the loading positions on the NOTOC.

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It is important for the DHL Supervisor to maintain awareness of all the different elements of the turnaround process and remain vigilant at all times. As standard practise, the DHL Supervisor shall not leave the immediate vicinity of the aircraft whilst the turnaround procedure is being carried out. The DHL Supervisor shall not carry out any tasks or activities that either removes them physically from the immediate vicinity of the aircraft or diverts their attention away from supervising the operation.

If, in exceptional circumstances, the DHL Supervisor is forced to leave the aircraft for a period of time he/she shall advise the Team Leader/Lead/Supervisor of the 3rd Party Handling agent that he/she intends to leave the aircraft prior to doing so.

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4.0.3 Scenario C: 3rd party Supervisor with a contracted 3rd party Handling Agent from the *same* company

Where a 3rd Party Handling Company has been contracted to carry out, and supervise, the turnaround of a network aircraft without a DHL supervisor present, it is expected that the 3rd party Supervisor acts in full compliance with the requirements as a DHL Supervisor (scenario A).

The exceptions to the list of responsibilities compared with scenario A are:

- Any event which requires an Occurrence Report and/or RCIR to be submitted must be communicated to the DHL representative who has oversight of the station, the appropriate report will be submitted on behalf of the 3rd Party Supervisor.
- Information required for any other DHL systems which cannot be directly accessed by an external user (e.g. NMIV, RUM, SABLE, RCIR, Web Manuals, AFIRS etc) shall be communicated directly to the DHL station representative or the responsible person in accordance with the local agreement. All information shall be provided in accordance with the requirements of the Service Level Agreement (SLA).

The 3rd Party Supervisor shall ensure open communication with the relevant DHL management team prior to, during and after the turnaround so that the aircraft is handled in accordance with all DHLAGOM and applicable DHL procedures and timings.

Note: Where 3rd party contracted operator is handled by a 3rd party contracted ground handler with no DHL representation, all Occurrence reporting and investigation shall be carried out in accordance with the contractual agreement between the two parties.

This scenario is not applicable for stations in the EU region or stations receiving EU Network Flights.

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4.0.4 Scenario D: 3rd party Supervisor with a contracted 3rd party Handling Agent from a *different* company

Where a 3rd Party Supervisor has been contracted to oversee 3rd Party Handling from a different company to carry out the turnaround of a network aircraft, without a DHL supervisor present, it is expected that the 3rd Party Supervisor acts in full compliance with the requirements as a DHL supervisor overseeing a 3rd Party Handling agent (Scenario B).

The Supervisor/team Lead/Lead from the 3rd Party Handler shall act in full compliance with the requirements of a DHL supervisor (Scenario A).

The exceptions to the list of responsibilities compared with scenario B are:

- Any event which requires an Occurrence Report and/or RCIR to be submitted must be communicated to the DHL representative who has oversight of the station, the appropriate report will be submitted on behalf of the 3rd Party Supervisor.
- Information required for any other DHL systems which cannot be directly accessed by an external user (e.g. NMIV, RUM, SABLE, RCIR, Web Manuals, AFIRS etc) shall be communicated directly to the DHL station representative or the responsible person in accordance with the local agreement. All information shall be provided in accordance with the requirements of the Service Level Agreement (SLA).

The 3rd Party Supervisor shall ensure open communication with the relevant DHL management team prior to, during and after the turnaround so that the aircraft is handled in accordance with all DHLAGOM and applicable DHL procedures and timings.

Note: Where 3rd party contracted operator is handled by a 3rd party contracted ground hander with no DHL representation, all Occurrence reporting and investigation shall be carried out in accordance with the contractual agreement between the two parties.

This scenario is not applicable for stations in the EU region or stations receiving EU Network Flights.

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4.1 Aircraft Arrival

4.1.1 Actions Prior to Aircraft Arrival

Prior to the start of operations, Supervisors shall hold a meeting with their team in order to disseminate all relevant operational information. Topics for the meeting shall include:

- Assignment of specific roles to team members
- Information about the expected inbound load, if applicable
- Loads requiring special handling (Restricted commodities, Live animals, etc.), if applicable
- Aircraft parking assignment
- Unusual conditions (Maintenance actions, delays, etc.)
- Review of pre-load, if available

The Supervisor shall ensure that the following pre-Arrival actions are conducted:

a. Conduct a foreign object debris (FOD) check of the entire stand, removing all debris just prior to aircraft arrival.
b. Make sure the stand surface condition is sufficiently free of ice, snow, etc. to ensure safe aircraft movement.
c. Make sure all required ground support equipment (GSE), chocks and safety cones are available and serviceable, and are positioned well clear of the aircraft path, outside the equipment restraint area (ERA) or Circle of Safety.

GSE required for the Turnaround should be pre-positioned at least 2.5 minutes prior to aircraft arrival.

d. Make sure the aircraft guidance docking system is activated, where applicable, or a marshaller is in position. Where an aircraft docking guidance system is in use, ensure it is operative and only activated when it is confirmed that conditions are safe to accept the aircraft. See **4.1.2 - Actions During Aircraft Arrival** (b) for Wing Walker positioning for Aircraft Arrival.
e. Make sure required ground staff are present including any additional staff (i.e., wing walker), if applicable. See **4.1.2 - Actions During Aircraft Arrival** (b) for wing walker positioning during aircraft arrival.

The number of staff shall be in accordance with locally established minimum requirements.

f. All staff shall remain well clear of the arriving aircraft and its manoeuvring path, outside the ERA (or Circle of Safety), other than those whose functions require them to be inside the ERA (or Circle of Safety) during aircraft arrival, e.g., marshaller(s) and/or wing walker(s). See **4.1.3 - Actions After Aircraft Arrival** for requirements/clearance for staff to approach the aircraft.

The person responsible for arrival operations must ensure that all equipment, except for nose-gear chocks and GPU (if there is a marked GPU parking position), remain at the head of stand; either outside the Equipment Restraint Area (ERA) or outside the Circle of Safety until the aircraft has come to a full and complete stop and Anti-Collision Beacon (ACB) has been switched off. All staff shall remain at the head of stand; either outside the Equipment Restraint Area (ERA) or outside the Circle of Safety until the aircraft has come to a full and complete stop and the Anti-Collision Beacon (ACB) has been switched off.

When local circumstances dictate that a transition to towing or pushback into stand is required, local procedures shall be published.

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4.1.2 Actions During Aircraft Arrival

a. For a standard arrival at a stand without an automated guide-in system or at an open ramp:

On receiving an arrival assignment, the Marshaller shall meet the aircraft at the entry to the DHL Ramp, or in the absence of being equipped with a vehicle, at the head of the stand. On arrival of the aircraft, he or she shall establish contact by flashing the vehicle headlights and illuminate the 'FOLLOW ME' sign and beacons, or if meeting the aircraft at the head of the stand, raise one hand with to signal his or her presence.

If a "FOLLOW ME" is used, the Marshaller will then lead the aircraft to its assigned parking position at a speed of 20 mph (30 kph), keeping adequate separation between the vehicle and the following aircraft. The Marshaller must be out of the vehicle and ready to commence signalling to the aircraft in sufficient time for the 'this stand' sign to be shown and before any manoeuvring is required of the aircraft.

1. As the aircraft approaches the stand area, the marshaller points to the guide-in line on the ramp to be followed by the aircraft by standing at the top of the guide-in line and giving the "Identify Gate/Stand" signal. See **3.4.7.1 - Identify Gate/Stand**. Wing walkers, if required, will be positioned approximately 1 m (3 ft.) outside the path of the wingtips. Wing walkers shall maintain visual contact with the marshaller until the aircraft has come to a complete stop. See diagram in **4.1.2 - Actions During Aircraft Arrival** for positioning of wing walker during aircraft arrival on stand.

   Wing walkers shall be used in areas where space is restricted (i.e. when clearance with other aircraft or obstructions is less than 6m/20ft), or in stations where wing walkers are mandatory.

2. While the aircraft taxies along the guide-in line, the marshaller gives the "Continue to Taxi Straight Ahead" signal with marshalling wands. See **3.4.7.2 - Continue to Taxi Straight Ahead**.
3. The nose wheel should follow the guide-in line all the way to the appropriate stop point. Use the "Turn Left (from the flight crew's point of view)" or "Turn Right (from the flight crew's point of view)" signals to correct the track of the aircraft as required. (See **3.4.7.4 - Turn Right (from the flight crew's point of view)**and **3.4.7.5 - Turn Left (from the flight crew's point of view)**).
4. If at any time during the aircraft movement the marshaller is unsure or identifies an imminent danger, signal the aircraft to "STOP" (see **3.4.7.6 - Stop**).
5. If at any time during the aircraft movement the wing walkers are unsure or identify an imminent danger, signal the marshaller with the "STOP" signal (see **3.4.7.6 - Stop**).
6. As the aircraft approaches the stop position, use the "Slow Down" signal, if required (see **3.4.7.3 - Slow Down**). As the nose wheel reaches the stop point, slowly cross the wands in the "STOP" signal (see **3.4.7.6 - Stop**).

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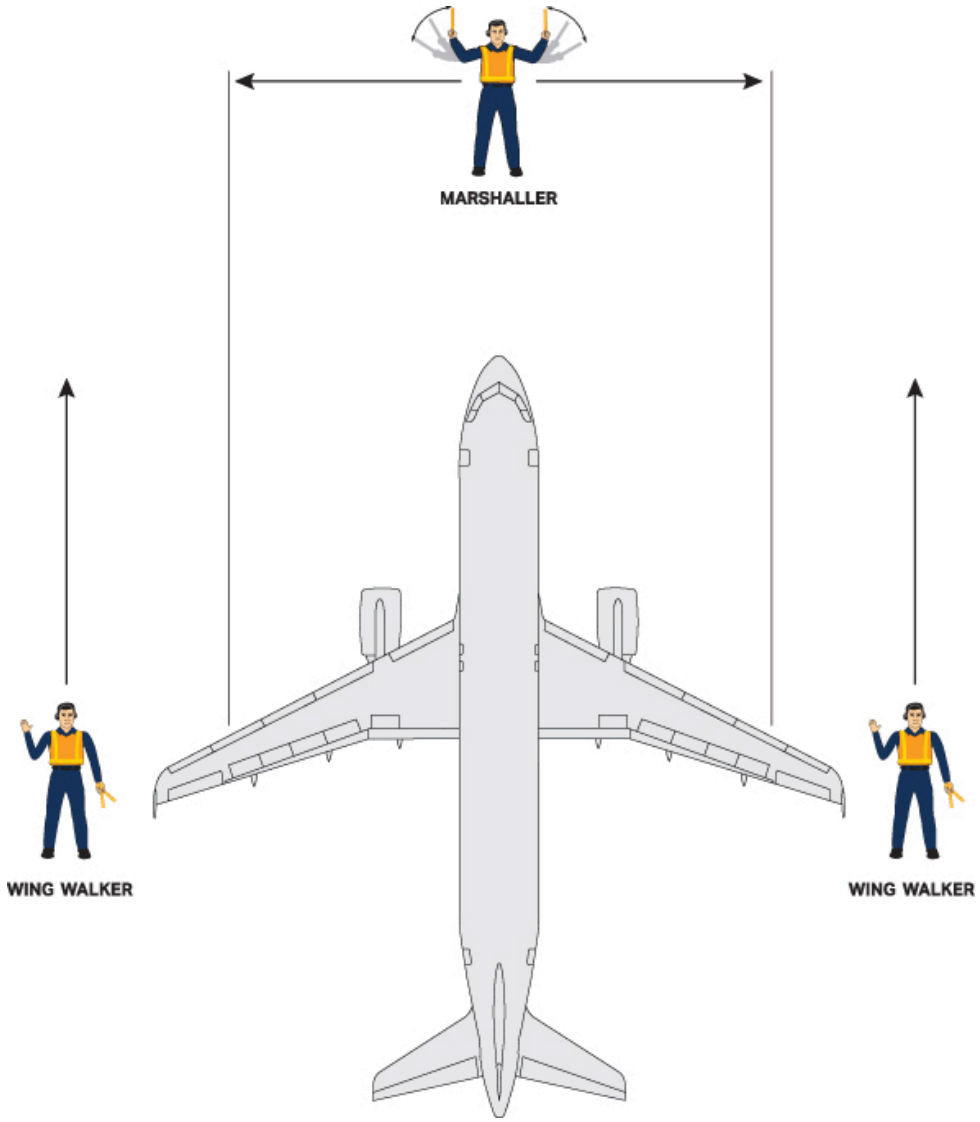
b. For a standard arrival at a stand with an automated guide-in system:

1. The ground staff responsible for aircraft arrival operations shall verify that the correct aircraft has been selected for the arrival and the equipment is operational.
2. The agent responsible for staffing the emergency stop button shall be positioned with an unobstructed view of the arriving aircraft and within reach of the system to stop the aircraft in the event it is needed. It is essential to maintain a continuous unobstructed view between the agent responsible for staffing the emergency stop button and the ground staff ensuring clearance (e.g., wing walker).
3. If the emergency stop is activated, and only after verification by the ground staff operating the guidance system that the risk is no longer there, the aircraft docking guidance system can be reactivated. If not, standard aircraft arrival procedures shall be used.
4. Wing walkers, if required, will be positioned approximately 1 m (3 ft) outside the path of the wingtips. Wing walkers shall maintain visual contact with the agent responsible for the aircraft arrival operations until the aircraft has come to a complete stop. See diagram in Figure 4.1.2 for positioning of wing walker during aircraft arrival on stand.



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c. In the event that tail-first pushing of the aircraft onto the parking stand is required:

1. Follow standard actions prior to aircraft arrival.
2. Any drive lane in the vicinity of the stand must be blocked to prevent traffic movement, utilizing Ramp vehicles, wing walkers etc. as required. Once the area is clear of traffic the push-back onto stand may commence.
3. All engines must be shut down prior to push-back onto stand. If the APU is inoperative, do not push tail first.

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4.1.3 Actions After Aircraft Arrival

a. Standard DHL procedure is that all aircraft equipped with a functioning APU shall arrive on stand with the APU operating, and switch off all engines immediately upon reaching final parking position.

1. Upon aircraft stopping, when the engines have been shut down, are spooling down, and the anti-collision lights have been switched off:

   i. The person responsible for arrival operations shall give clearance to position the nose landing gear (NLG) wheel chocks and to connect the GPU.

   ii. Ground staff shall position wheel chocks at the nose landing gear (NLG) wheels as per **4.2.1 - Wheel Chock Placement**.

   iii. Ground staff shall position and connect the ground power unit (GPU) or fixed power unit (FPU), in accordance with **4.1.4.1 - Ground Power Unit and Fixed Power Unit**.

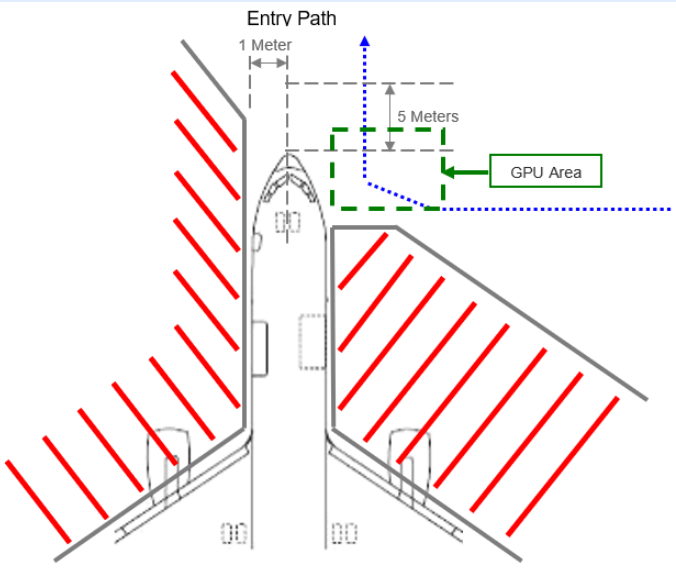
2. Upon aircraft stopping with engines running due to a defective APU, the engine(s) on one side of the aircraft (typically engine 2 on a twin-engine aircraft) shall be switched off by the flight crew. After the engine has been shut down and is spooling down:

   i. The person responsible for arrival operations shall give clearance to position the nose landing gear wheel chocks and to connect the GPU.

   ii. Ground staff shall position wheel chocks at the nose landing gear (NLG) wheels as per **4.2.1 - Wheel Chock Placement**.

   iii. Ground staff shall position and connect the ground power unit (GPU) or fixed power unit (FPU) on the side of the aircraft where the engine has been shut down, in accordance with **4.1.4.1 - Ground Power Unit and Fixed Power Unit**.

In order to chock the nose landing gear and connect the GPU, staff shall approach the aircraft starting at a point 5 metres (15 feet) forward of the aircraft nose and along a corridor within 1 metre (3 feet) of the nose to tail axis of the aircraft. This is to ensure that at all times a safe distance is maintained between staff and running engines. When positioning the GPU, ensure that a safe path of entry/exit is maintained as per the dotted blue line. The illustration below demonstrates the positioning of the GPU if the number 2 engine has been shut down.



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b. After the engines have been shut down, are spooling down, the anti-collision lights have been switched off, NLG chocks have been positioned, and the GPU has been connected:

1. The person responsible for arrival operations shall give clearance for positioning of the remaining wheel chocks and safety cones.
2. Remaining wheel chocks shall be placed in accordance with **4.2.1 - Wheel Chock Placement** and verbal/visual confirmation shall be given to the flight crew.
3. Safety cones shall be placed in accordance with **4.3.1 - Safety Cone Placement and Removal**. After placement, other GSE may enter the ERA to approach the aircraft.

   Note: Positioning of GSE at its final servicing position shall only take place after inspection of the door/service panel and surrounding area where the GSE shall position and clearance given.



Engines which have been switched off and are spooling down may still pose a suction risk. **Always be aware of your surroundings and stay clear of the engine intake area until the engine spin has slowed down such that the individual engine fan blades or propeller blades are visible.**

c. Before positioning any other GSE, conduct an arrival walkaround to inspect for damage to the following parts of the aircraft:

1. All cargo access doors
2. All access panels and servicing access points
3. Aircraft fuselage
4. Aircraft engine cowlings/propellers
5. All cabin access doors, including service doors.

An Aircraft Damage Inspection Sheet (**Annex B: Aircraft Damage Inspection Sheet**) shall be completed and any damage found shall be reported in the IQSMS Occurrence reporting system. If any damage is found, report it immediately to a supervisor, flight crew and/or maintenance staff. Do not approach the aircraft with any GSE in the area where the damage has been found, until inspection is complete and clearance has been given to proceed by the direct supervisor/manager, aircraft flight crew or aircraft maintenance staff. The completed Aircraft Damage Inspection Sheet shall be retained with flight documentation according to local procedures.

d. Give clearance for GSE to position to the aircraft.

Some operators of propeller aircraft may require propeller blades to be tethered / restrained to the aircraft with straps once the engines have come to a complete stop, in order to prevent spinning of the propellers. Where this restraint method has been approved for use by the operator, this procedure shall be part of the aircraft arrival. Application of the prop tether/strap shall only take place once the aircraft is chocked and coned and the propeller blades have come to a complete stop.



If notified of a brake overheat, do not approach the main gear.



If an aircraft arrives with an unserviceable anti-collision light, do not approach the aircraft until headset communication has been established with the flight crew.

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4.1.4 Ground Support Equipment for Arriving Aircraft

4.1.4.1 Ground Power Unit and Fixed Power Unit

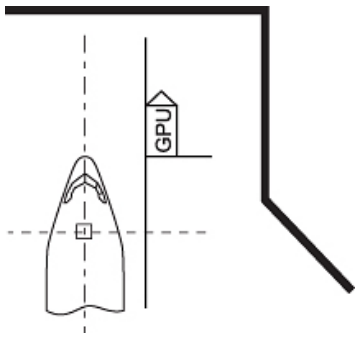
a. It is permitted to preposition a Ground Power Unit (GPU) inside the ERA, provided there is a marked GPU parking position.
b. Position the GPU on the appropriate side of the aircraft as shown in the below figure.

Ensure a safe path of entry and exit is maintained at all times. Where a GPU access point is located near to propeller arcs or engine intake areas the cable must be laid as near to the fuselage as possible **avoiding all danger areas.**

c. Set the parking brake/chock for the GPU.
d. Ensure the GPU, while in operation, is positioned a minimum of 3 m (10 ft) from any fueling vehicles and aircraft fuel vent exits.
e. Fixed Power Unit (FPU) and leads shall be fully stowed/retracted during aircraft arrival as per the system design.
f. Only connect GPU(s)/FPU(s) if required/requested by the operating airline.
g. Before connecting to the aircraft, check the aircraft receptacles, lead(s) and plug(s) to ensure they are clean and undamaged, with no sign of excessive wear or electrical burning to the contacts.

If damage to GPU lead(s) or plug(s) is found, the damaged unit shall be taken out of service until it is repaired. If a damaged GPU cable is discovered whilst in operation, the circuit must be tripped before the unit is unplugged from the aircraft.

h. Do not energize the GPU/FPU power output until the unit is connected to the aircraft.
i. Connect the external power sources according to operating airline procedures, including the number of supplies, required output, sockets to be used, etc. Advise the flight crew of any discrepancies.
j. Attach the power lead lanyards to the aircraft attachment point, where fitted. Grounding wires or bonding cables are not suitable fixing points.
k. Request approval from flight deck before turning off and disconnecting the GPU/FPU cables.
l. Turn off the GPU/FPU power output before disconnecting the cable(s).
m. Always disconnect and stow the GPU power cables BEFORE connecting a tow tractor to the GPU.
n. When handling GPU cables, rubber gloves should be worn.
o. GPU cables shall not be left lying on the ground.
p. Where use of the ‘H’ mode propeller disengagement has been approved for use in coordination with the operator, this procedure shall be utilised during ground handling operations.



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4.1.4.2 Cooling/Heating Units and Preconditioned Air



Before supplying air from an external source, make sure at least one cabin access door is open and remains open during air unit operation, as per operating airline procedures.
Make sure a motorized ground air supply unit is not near the aircraft. The engine exhaust pipe of the unit shall point away from the aircraft. Heat from the unit's exhaust can cause damage to the aircraft structure.

As part of the fuel conservation program of most airlines, preconditioned air (PCA) is required at all airports that provide on-stand PCA.

Refer to the aircraft technical specifications chapters or the operating airline's instructions for the location of the PCA access panel on the specific aircraft type.

Note: Make sure there is no blockage of the hose.

a. To connect PCA:
   1. Open the access panel.
   2. Connect the ground PCA unit to the aircraft.
   3. Start up the ground PCA unit.
   4. On the ground PCA unit, select the desired cooling or heating settings (air temperature and flow rate) and position the selector in the appropriate position.

b. To disconnect PCA:
   1. Shut down the ground PCA unit.
   2. Disconnect the ground PCA unit from the aircraft.
   3. Close the access panel.
   4. Retract the PCA hose to the fully stowed and secured position.

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4.2 Aircraft Chocking

4.2.1 Wheel Chock Placement

a. Make sure the required number of serviceable chocks are available, considering the aircraft type and weather conditions.

Chocks used must be suitable for the aircraft type. They shall:

- Be of a high visibility colour or display high visibility markings
- Be triangular in shape
- Provide sufficient grip
- Be long enough such that it covers the full width of the aircraft wheel
- Be high enough such that the aircraft wheel will not roll over the chock during the turnaround

b. Chocks shall be kept clear of the guide-in line and in a safe area away from arriving aircraft and engine danger areas.

c. Wait for aircraft to come to a complete stop, the engines have been switched off, and the Anti-Collision Beacon is off, before approaching the aircraft to position chocks. For non-standard arrival where the engine remains on, see **4.1.3 - Actions After Aircraft Arrival**

d. One designated ground staff member will immediately place chocks forward and aft of the nose gear if the aircraft type allows and according to the options listed in **4.2.2 - Chock Placement Diagrams**. This is the first action to take place around the arriving aircraft and shall be completed before any other activity takes place.

e. Before approaching the main gear, wait until:

1. Engines have been shut down and are spooling down (or propellers completely stopped).
2. Anti-collision lights are switched off.
3. Clearance to approach the aircraft has been given by the person responsible for the arrival operation.

Engines which have been switched off and are spooling down may still pose a suction risk. **Always be aware of your surroundings and stay clear of the engine intake area until the engine spin has slowed down such that the individual engine fan blades or propeller blades are visible.**

f. Walk towards the main gear in a path parallel to the fuselage, avoiding engine intake areas.

g. Place chocks forward and aft of the main gear in accordance with the applicable normal chock placement diagram. See **4.2.2 - Chock Placement Diagrams**.

Chocks shall be placed so that they can be easily removed after loading, accounting for the fact that the aircraft will ‘settle’ during loading and un-loading.

When main gear chocking has been completed, nose gear chocks shall be removed. For operators from the Americas region, nose gear chocks shall remain in place in addition to the main gear chocks. See Americas Regional Variation **3.1 - Chocking**.

h. Notify the flight crew that the chocks are inserted.

Notes:

After the first main gear has been chocked, the nose gear chocks may be removed and positioned at the other main gear.
When the aircraft is parked on a slope, the chock on the down-slope side should just touch the wheels and the chock on the up-slope should not touch the wheels.

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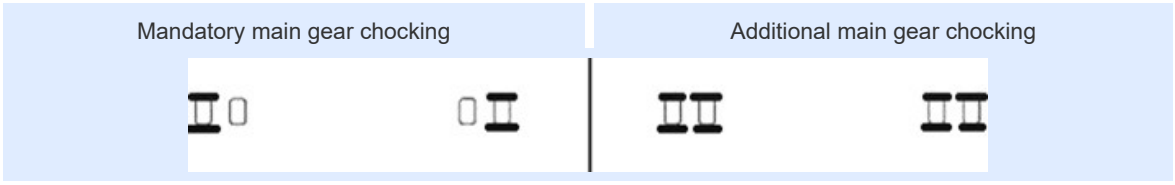
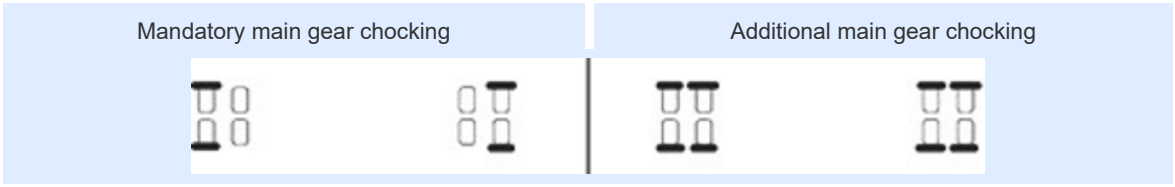
For propeller aircraft with a nose engine, the nose gear cannot be chocked until the engine has been shut down and the propellers have come to a complete stop.

4.2.2 Chock Placement Diagrams

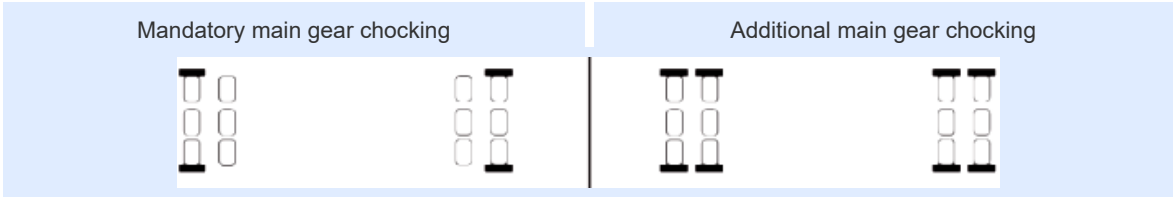
1. Aircraft with single-axle main-gear bogie (e.g. A321, B737)



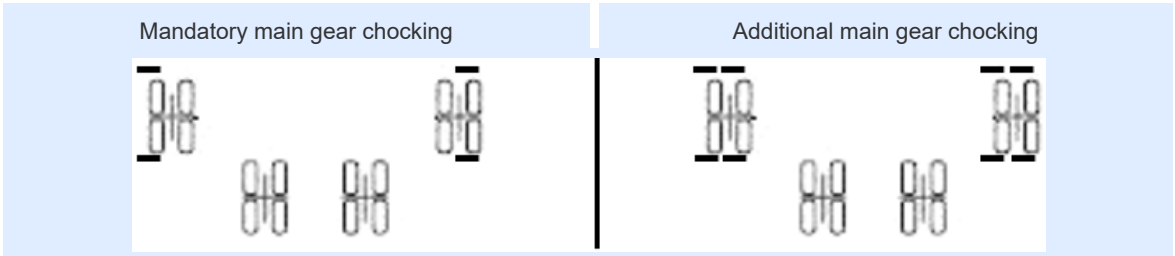
2. Aircraft with double-axle main-gear bogie (e.g. A300, A330 B757, B767)



3. Aircraft with triple-axle main-gear bogie (e.g. B777)



4. Aircraft with centre and body-gear bogies (e.g. B747)



When chocking the main gear, chocks can be applied to the inside or outside set of wheels.

Additional chocking is to be implemented on aircraft when out of service, during day stops, or in strong winds (above 25 knots)

Nose gear wheels are to remain chocked in event of strong winds above 25 knots.

See the Aircraft Technical Specifications chapters for any exceptions to standard chocking.

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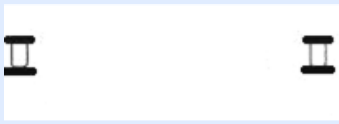
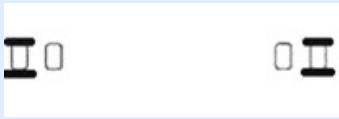
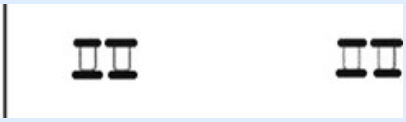
4.2.3 Regional Aircraft Chocking

1. Aircraft with single-wheel main gear bogie (e.g. Cessna Caravan)

Mandatory main gear chocking	Additional chocking (applied to nose gear)
	

2. Aircraft with single-axle main-gear bogie (e.g. ATR, Saab)

Mandatory main gear chocking	Additional main gear chocking
	

When chocking the main gear, chocks can be applied to the inside or outside set of wheels.

Additional chocking is to be implemented on aircraft when out of service, during day stops, or in strong winds (above 25 knots)

Nose gear wheels are to remain chocked in event of strong winds above 25 knots.

See the aircraft specifications chapters for any exceptions to standard chocking.

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4.3 Aircraft Coning

4.3.1 Safety Cone Placement and Removal

Safety cones are a caution sign for operators/drivers to maintain required safety clearances. Cones protect parts of the aircraft against collision by GSE.

Cones shall:

- Have a conical shape
- Have a minimum height of 750mm (29.5in)
- Have a minimum base weight of 4.5Kg (10Lb)
- Be of high contrast safety colour with reflective stripes

a. Prior to arrival of the aircraft, make sure there are sufficient serviceable safety cones to protect the aircraft type to be handled.
b. Approach the aircraft to position cones only when all the following criteria are met:
    1. Aircraft has come to a complete stop
    2. Engines have been shut down and are spooling down (or propellers completely stopped)
    3. Anti-collision lights are switched off
    4. Aircraft has been chocked



Engines which have been switched off and are spooling down may still pose a suction risk. **Always be aware of your surroundings and stay clear of the engine intake area until the engine spin has slowed down such that the individual engine fan blades or propeller blades are visible.**

c. Place safety cones on the ground in accordance with the diagrams in **4.3.2 - Cone Placement for Wing-Mounted Twin Engine Jet Aircraft** within a maximum of 1 m (3 ft.) radius outward from the point where the aircraft is being protected. Cones shall not be placed in high-wind conditions.
d. Additional safety cones may be needed as per operational requirements or local regulations.
e. GSE shall not approach the aircraft until all safety cones have been placed (not applicable for the PBB or GPU, if required).
f. All required safety cones shall remain in place until GSE and vehicle activities around the aircraft have ceased prior to departure of the aircraft.

Note:

1. *In some situations, it may be necessary to reposition cones to allow GSE to be positioned.*
2. *Cones shall not be placed under engines.*
3. *Reposition the cones when the GSE is removed.*

g. Ensure all vehicles have been removed from the ERA.
h. Remove the safety cones from around the aircraft.
i. When not in use, place the safety cones in the designated storage area.

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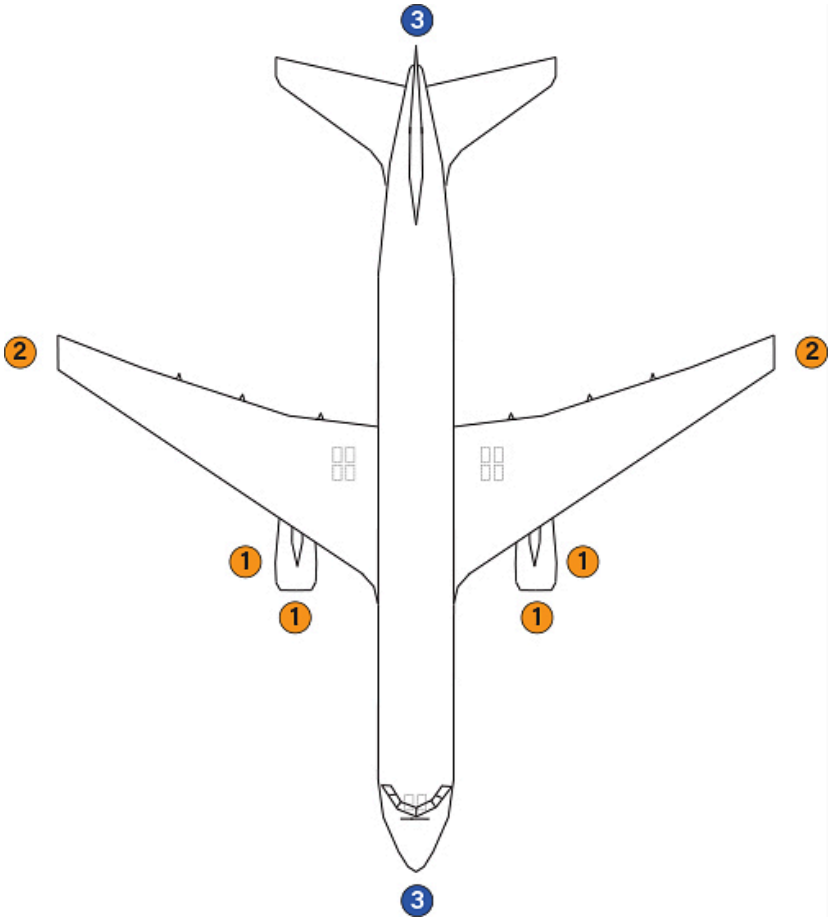
4.3.2 Cone Placement for Wing-Mounted Twin Engine Jet Aircraft



Cone Number	Description
1	Cones placed max. 1 m (3 ft.) in front of and on the outside of engines
2	Cones placed max. 1 m (3 ft.) from wingtips
3	Additional cones to be placed at the applicable end(s) of the aircraft where immediately adjacent to a service road.

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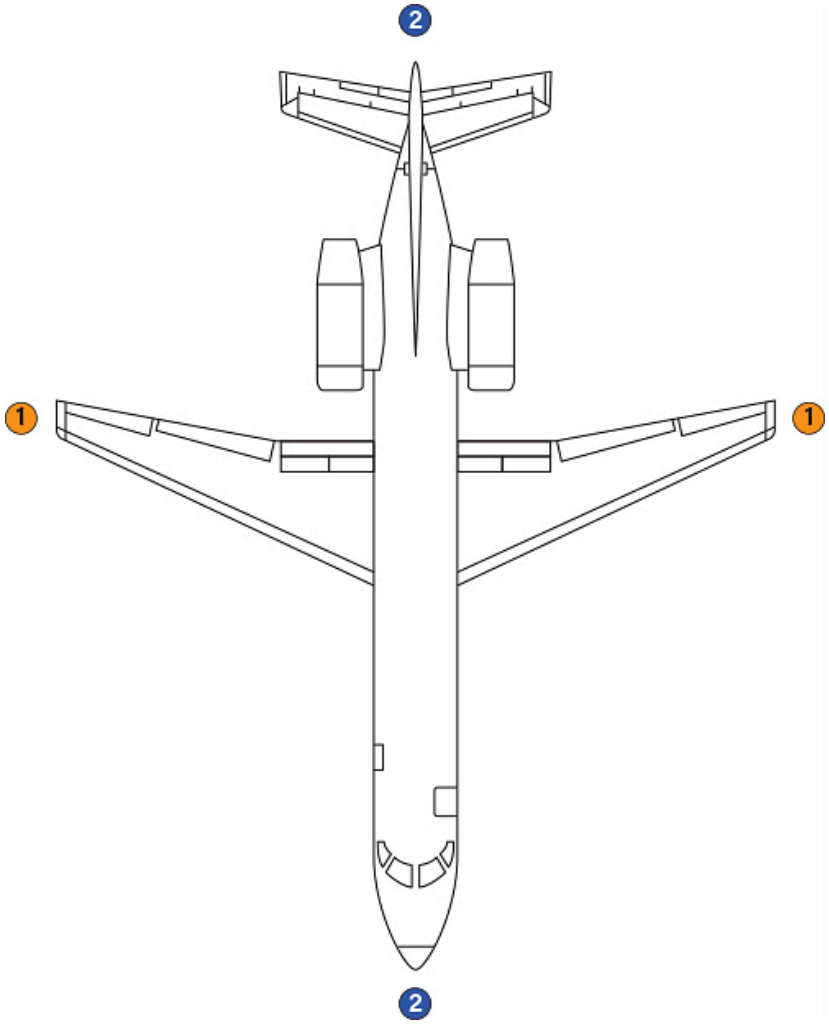
4.3.3 Cone Placement for Fuselage-Mounted Twin Engine Jet Aircraft



Cone Number	Description
1	Cones placed max. 1 m (3 ft.) from wingtips
2	Additional cones to be placed at the applicable end(s) of the aircraft where immediately adjacent to a service road, and always for aircraft with low ground clearance (e.g., CRJ100/200/700/900/1000, ERJ-135/145).

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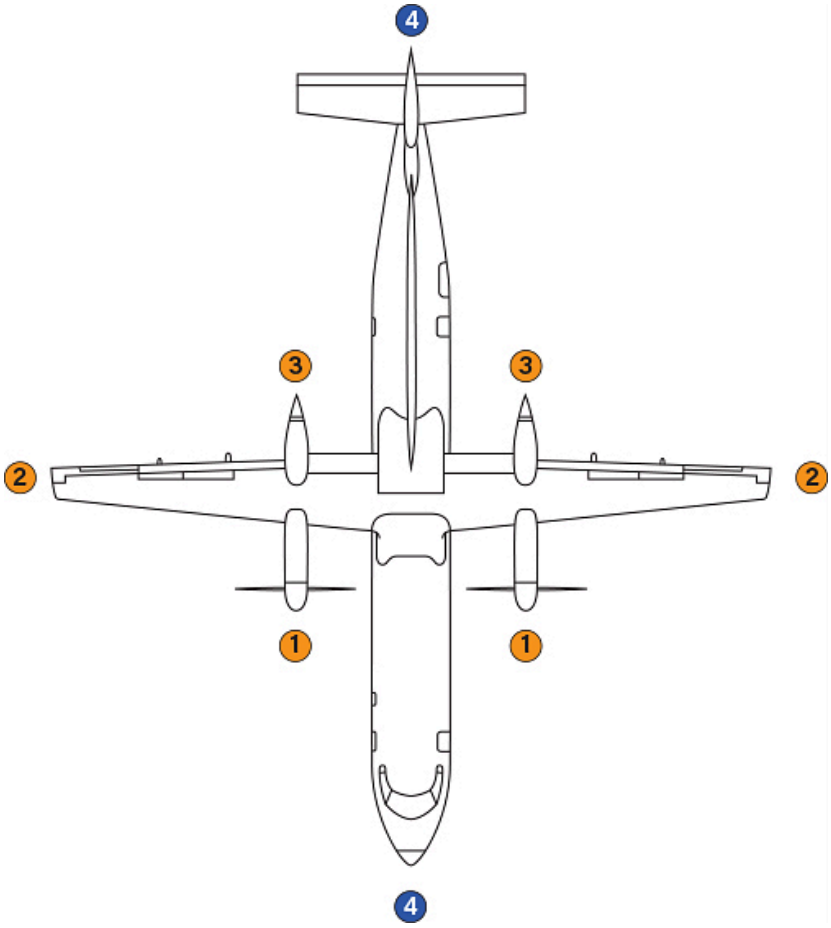
4.3.4 Cone Placement for Wing-Mounted Twin Propeller Aircraft



Cone Number	Description
1	Cones placed max. 1 m (3 ft.) in front of engines
2	Cones placed max. 1 m (3 ft.) from wingtips
3	Cones placed max. 1 m (3 ft.) behind engines
4	Additional cones to be placed at the applicable end(s) of the aircraft where immediately adjacent to a service road, and always for aircraft with low ground clearance (e.g., ATR 42/72, DHC-8, Q300/400).

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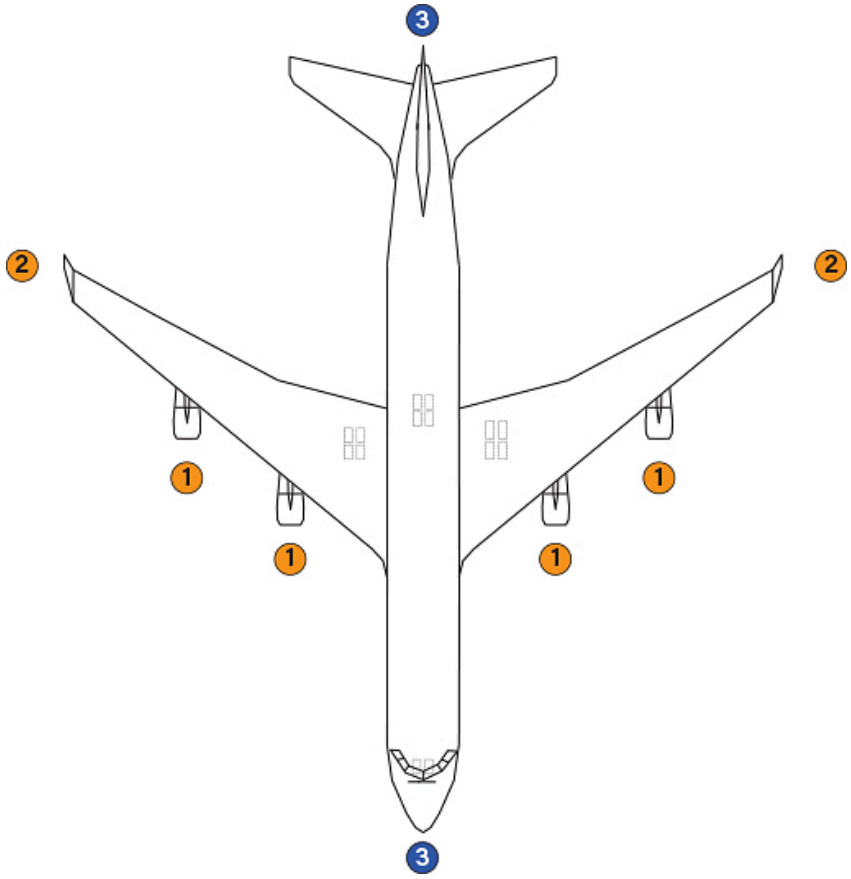
4.3.5 Cone Placement for Wing-Mounted Four Engine Jet Aircraft



Cone Number	Description
1	Cones placed max. 1 m (3 ft.) in front of engines
2	Cones placed max. 1 m (3 ft.) from wingtips
3	Additional cones to be placed at the applicable end(s) of the aircraft where immediately adjacent to a service road, and always for aircraft with low ground clearance (e.g., BAe-146, Avro RJ-85/100).

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4.4 Aircraft Access Doors

4.4.1 General Safety Requirements

This section provides generic precautions and does not constitute training on opening/closing of aircraft access doors.

a. Ground staff shall not operate any aircraft access doors unless they have been trained and authorized to do so.
b. Aircraft access door operation shall be performed in accordance with operating airline procedures for the applicable aircraft type and, where applicable, the markings labelled on the door.
c. Seek assistance from maintenance staff if any difficulty is experienced during normal door operation.
d. If damage or irregularity is discovered, immediately report it to the supervisor, aircraft maintenance staff and if available, flight crew.

Do not operate or leave doors open in winds exceeding those indicated in the manufacturer's limitations. See the Strong Wind Conditions section of the Aircraft Technical Specifications chapters for specific wind speed limits for operating doors in windy conditions according to the different aircraft types.

Note: For door operations during severe weather, refer to **3.3 - Adverse Weather Conditions**

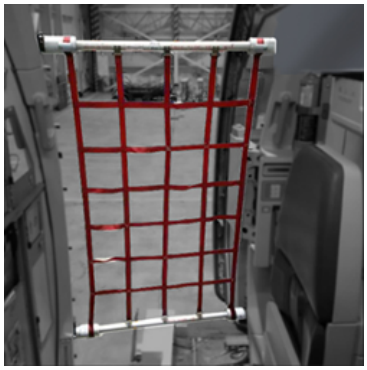
4.4.2 Cabin Access Doors

4.4.2.1 General

a. Cabin Access Doors shall only be operated by flight crew or by trained and authorized ground staff, in accordance with the technical specifications of the Original Equipment Manufacturer (OEM) and the procedures of the aircraft operator as defined in the Aircraft Technical Specifications chapter.
b. Cabin access doors shall only be operated or left in the open position if there are passenger stairs at its final height positioned at the door or if an appropriate fall prevention device is placed across the door.

Notes:

1. *An appropriate fall prevention device consists of equipment or material, or a combination of both, that is designed to stop or prevent the fall of a person from an open door (e.g., an industrial safety net, catch platform or safety harness system) see below figure.*
2. *Refer to operating airline instructions for installation procedures.*
3. *The cabin door strap installed in aircraft doors is not considered an appropriate fall prevention device.*



There is a risk of falling while operating cabin access doors.

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c. Passenger stairs shall be removed after the cabin access door is closed and acknowledged by flight crew or by other authorized person.



Slide deployments can be fatal. If an armed door begins to open, do not attempt to hold the door from outside, to prevent risk of serious injury or death.

d. If a cabin access door is found open without passenger stairs positioned at the door, staff shall immediately notify a supervisor or the airline representative.
e. Before allowing passenger/crew embarkation or disembarkation via a cabin access door, ensure both guard rails on the passenger stairs are extended, if applicable.

Exception: Cabin access doors shall only be open without passenger stairs in position when the height of the door from the ground is such that passenger stairs are not required to be positioned to perform servicing/loading operations.



Staff shall remain aware of increased risk of a fall from a height while retracting stair platform and safety rails.

All staff shall take care when entering and exiting the aircraft. Staff shall check to ensure that the floor area immediately inside the aircraft is free from obstacles prior to stepping into the aircraft. Care shall be taken to avoid tripping on the lower lip (doorsill) of the aircraft door structure.

No staff shall exit the aircraft backwards. If closing an inward opening door (e.g. B757PCF), the person closing the door shall first exit the aircraft onto the stairs and then turn around and close the door. Do not attempt to close the door whilst simultaneously exiting the aircraft.

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4.4.2.2 Opening Cabin Access Doors from Inside by Crew

When the flight crew are on board the aircraft, Cabin Access Doors shall only be opened from the inside by the flight crew.

The responsible ground staff shall:

a. Knock twice on the door, to indicate that passenger stairs are properly positioned, and the door swing area is free from obstruction. Provide a conventional “thumbs up” signal through the door window to the crew if required.

   For aircraft which do not have a window in the cabin access door, the ‘thumbs up’ signal may be given by a member of the loading team positioned at the head of the stand in full view of the flight crew.

b. Stand clear or retreat to a safe position before the door is opened by crew.

   Note: If the door is not immediately opened, stand clear of the door and do not approach the door until contact has been made with the flight crew.

c. Assist cabin crew when required, with moving the door to the fully opened position and engaging the gust lock.

4.4.2.3 Opening of Cabin Access Doors from Inside by Authorized and Trained Ground Staff

a. Check that the door is disarmed.
b. Check that all indicators show that it is safe to open the door.
c. Check that passenger stairs are positioned correctly at the door.
d. The door shall be fully opened and the gust lock engaged.

4.4.2.4 Opening Cabin Access Doors from Outside with Crew/Ground Staff on Board

When the flight crew are on board the aircraft, Cabin Access Doors shall only be opened from the inside by the flight crew.

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4.4.2.5 Opening Cabin Access Doors from Outside with No Crew/Ground Staff on Board

a. Visually inspect the cabin access door and the surrounding fuselage for signs of damage.
b. Check all indications as per aircraft type that the door is disarmed and safe to be opened. e.g., residual pressure warning lights or flags.



If there is no indication that the door is disarmed or safe to open, do not open the door.

c. Once it is confirmed that the door is disarmed and safe to open, open the door in accordance with the instructions and markings labeled on the door, and the specific instructions for the aircraft type.
d. Move the door to the fully opened position and engage the gust lock.
e. If integral airstairs are to be used (other than those permanently affixed to a boarding door), fully extend the airstairs prior to opening the door.
f. If using integral airstairs permanently affixed to a boarding door, stand clear of the door and slowly open the door until the airstairs are fully extended.

4.4.2.6 Closing of Cabin Access Doors from Inside by Crew

Prior to removing or repositioning passenger stairs, the responsible ground staff shall:

a. Notify crew that equipment needs to be removed or repositioned (as applicable) and that the cabin access door needs to be closed.
b. Receive confirmation from the crew that the cabin access door will be closed.
c. Visually inspect the exterior of cabin access door and surrounding areas for signs of damage, debris, or obstructions.
d. Retract equipment safety rails and canopy (where fitted) where necessary to close the door.
e. Assist cabin crew when required, with moving the door to the fully closed position.
f. Where using passenger stairs, remain on the platform until the door is fully closed.
g. Where using elevating equipment (e.g., catering truck or medical loader) retreat from the platform prior to the door being closed.
h. Check that the cabin access door is closed and that the door and handle are flush with the surrounding fuselage.
i. Descend passenger stairs before they are moved.

Note: Passenger stairs shall not be moved until positive clearance has been received from the flight crew.

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4.4.2.7 Closing of Cabin Access Doors from Inside by Authorized and Trained Ground Staff

a. Coordination between applicable ground staff inside and outside the aircraft to confirm that the cabin access door will be closed shall take place prior to closing the door.
b. The trained ground staff onboard shall:
    1. Visually inspect the cabin access door and inside surrounding areas for signs of damage, debris or obstructions.
    2. Move the door to the fully closed and locked position in accordance with the instructions and markings labeled on the door, and the specific instructions for the aircraft type.
c. The passenger stairs operator shall follow the same steps as documented in **4.4.2.6 - Closing of Cabin Access Doors from Inside by Crew** points b-i and additionally:
    1. Where using elevating equipment (e.g., catering truck or medical loader) staff shall retreat from the platform prior to the door being closed.
    2. Retract equipment stabilizers after the door is closed and staff are clear of the equipment.
    3. Remove passenger stairs from the door.

4.4.2.8 Closing of Cabin Access Doors from Outside with Crew/Ground Staff on Board

When the flight crew are on board the aircraft, Cabin Access Doors shall only be operated from the inside by the flight crew.

4.4.2.9 Closing Cabin Access Doors from Outside with No Crew/Ground Staff on Board

a. Prior to closing the cabin access door from outside, the person responsible for closing the door shall:
    1. Visually inspect the exterior of cabin access door and surrounding areas for signs of damage, debris or obstructions.
    2. Retract equipment safety rails and canopy (where fitted) where necessary to close the door.
    3. Release the gust lock and move the door to the fully closed and locked position in accordance with the instructions and markings labeled on the door, and the specific instructions for the aircraft type.

        The door of the B757PCF shall only be closed when the person responsible for closing the door is fully outside the aircraft and standing on the boarding platform.

    3. After the door is closed, check that the door and handle are flush with the surrounding fuselage.
    4. Where closing the door from passenger stairs, descend the stairs before they are moved.
b. The passenger stairs operator shall:
    1. Retract equipment stabilizers after the door is closed and staff are clear of the equipment.
    2. Remove passenger stairs from the door.
c. If integral airstairs are used (other than those permanently affixed to a boarding door), fully retract and stow the airstairs.

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4.4.2.10 Reopening Cabin Access Doors

In situations where a cabin access door needs to be reopened and reclosed after initial closing (e.g., not closed properly, additional delivery of catering and/or supplies, requirement to reconnect passenger stairs), the following shall apply:

a. Where flight crew or other qualified staff are in the cockpit, but they did not initiate the request to reopen the cabin access door:
    1. Seek authorization from the flight crew or other qualified staff in the cockpit for the cabin access door to be reopened via headset, hand signals, or an open cockpit window (if applicable)
    2. Await clearance to re-open the cabin access door. If authorization to reopen the door is not granted, do not attempt to reopen the door.

b. Follow the applicable actions/steps in the Opening Cabin Access Doors sections (see **4.4.2.1 - General** to **4.4.2.5 - Opening Cabin Access Doors from Outside with No Crew/Ground Staff on Board**, as applicable).

4.4.3 Cargo Hold Access Doors

4.4.3.1 General

a. Manual operation of an electrically or hydraulically operated cargo hold access door may only be performed by trained staff.
b. To access the cargo access door control panel where it is out of reach from the ground, use maintenance stairs in accordance with **3.1.3.3 - Non-motorized Ground Support Equipment** or, if maintenance stairs are not available, a belt loader in accordance with **3.1.3.7 - Belt Loader**

    Note: Not applicable to main deck cargo access doors.

c. Allow adequate space for door clearance to avoid equipment obstructing the free passage of the door during opening/closing.
d. The cargo access door control panel, where applicable, shall be closed when not opening/closing the cargo hold access door.

Stations shall ensure they have access to technical information for how to operate cargo hold access doors from operators.

Door sill guards on every aircraft type shall be lowered or raised in a slow and controlled manner by the Hi-loader Operator from the Hi-loader platform. It is forbidden to lower these from inside the aircraft due to the risk of falling from height. Door sill guards shall not be dropped into position as this can cause serious damage to the door structure and surrounding aircraft components. Once lowered, all weight bearing struts must be checked for correct alignment.

It is the responsibility of all employees to prevent water entering into aircraft electrical systems through the floor structure of the aircraft.

The opening of aircraft doors during periods of rainfall or snow should be limited to the minimum required for access to the aircraft. Whenever there is an accumulation (puddle) of water on the floor, due to heavy rain or snow entering the aircraft, the cabin access or cargo doors shall be closed immediately.

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4.4.3.2 Opening Cargo Hold Access Doors

a. Before positioning GSE and/or opening, perform a visual check for any signs of damage to the doors or surrounding areas.
b. Where applicable, check cargo hold access door control indicators, residual pressure warning lights or flags to ensure it is safe to operate the door or open the cargo access door vent flap.
c. Open the cargo hold access door in accordance with the specific instructions for the aircraft type.
d. For main deck cargo hold access door. See **4.4.3.4 - Reopening of Cargo Access Hold Doors**.

4.4.3.2.1 B757-200F Lower Lobe Cargo Door Switch malfunction (All operators and Conversions)

The door is supposed to stop in any position when the switch is released. However, it has been known to fail, and continue to close after the control switch is released.

The switch is located in the external control panel aft of each cargo door

Ramp staff must be aware of this potential situation. They shall:

- Position themselves clear of the door path when operating the door
- Ensure that the door stops moving after releasing the control switch, before moving into the door path area

4.4.3.3 Closing Cargo Hold Access Doors

a. Before closing the cargo hold access door, ensure:
    1. The anti-roll-out system (door sill guards/latches) if installed, is in the raised position.

       Note: At each cargo compartment door sill, there are two types of latches.

    2. The overridable lateral latch, which stops the accidental roll-out of a unit. This latch is overridden in the loading direction and is lowered for unloading.
    3. The other type of latch is an upward latch and locks the unit at the doorsill.
    4. Load restraint and door protection nets are properly fitted, if applicable.
    5. Door area, including the door sill and frame, are free of debris and other obstructions.
    6. Door and surrounding area show no visible signs of damage.

b. Close the cargo hold access door in accordance with the specific instructions for the aircraft type.
c. After closing the cargo hold access door, ensure:
    1. The lock indicators are engaged/properly set, as applicable, and that the door is properly locked, handles are properly stowed, and panels are properly closed.
    2. A visual check is performed for any signs of damage to the doors and surrounding areas.
    3. The vent flaps are also closed, if required.

4.4.3.4 Reopening of Cargo Access Hold Doors

a. If a cargo hold access door is not closed properly, it shall be reopened and reclosed.
b. Once the predeparture walkaround has taken place in accordance with **4.6.3.1 - Predeparture Walkaround Check**, do not attempt to reopen any aircraft cargo hold access door without clearance from the flight crew or the trained ground staff in the cockpit.
c. If a door needs to be reopened, the ground staff responsible for the departure shall notify the flight crew via the use of the flight interphone system or where practical use the cockpit open window.

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4.4.3.5 Main Deck Cargo Access Door Operations

Observe the following additional requirements for opening and closing main deck cargo access doors:

a. The main deck ULD loader shall remain clear of the main deck cargo access door trajectory during opening and closing.
b. Where required to unlock/lock the main deck cargo access door from the outside, use main deck ULD loader in accordance with **3.1.3.8 - Unit Load Device Loader (i.e. High-loader or K-loader)**
c. Safety barrier nets shall always be installed whenever the main deck cargo access door is open, and the main deck loader is not in position. Remove the safety barrier net once the main deck loader is in position and reinstall the safety barrier net before removing the main deck loader.



Risk of falling from height. Any staff present in the main deck cargo compartment shall remain clear of the door opening area when it is open without a main deck ULD loader in position. Never lean on safety barrier nets. Safety barrier nets are intended strictly as a visual warning to those working in close proximity of open doors, and are reminders of the risk of serious injury if leaning on these Safety Barrier Nets.

d. Where applicable, check main deck cargo access door control indicators, residual pressure warning lights and flags to ensure it is safe to operate the door.
e. Check to ensure there are no obstructions outside the main deck cargo access door before opening/closing.
f. For main deck specific loading operations, see **4.5.3.3 - Main Deck Loading of Freighter Aircraft**.

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4.5 Aircraft Loading and Unloading

4.5.1 Supervision of Aircraft Loading and Unloading

4.5.1.1 Supervision Responsibility

a. The person performing the aircraft loading and unloading supervision task is responsible for the safe and efficient handling of the aircraft as well as the protection of the loads carried.
b. The responsibility will ensure the aircraft is:
    1. Unloaded in accordance with LDM/Off-Load Plan or any other incoming messages
    2. Loaded in accordance with the corresponding Loading Instructions (GOALS or printed Load Plan).

Note: Any aircraft loading/unloading operation shall only start in the presence of the person responsible for the aircraft supervision task.

4.5.1.2 Communication

When verbal communication is used, it is critical that combinations of letters and numbers are pronounced and understood by those who transmit and receive voice messages by radio or telephone, regardless of their native language. The ICAO phonetic alphabet and numbering system shall be used by all parties when involved in aircraft turnaround. Refer to **Annex A: ICAO Phonetic Alphabet**.

To ensure all the load is accounted for accurately prior to departure, the parties responsible for loading and load planning shall clearly communicate and confirm:

a. Flight number
b. Aircraft registration
c. Flight leg (Destination), as applicable
d. Load Plan edition number
e. Load by position/compartment, including NIL-Position/Compartment(s)
f. Return load (standby load that is not loaded)
g. All commodities and sub-commodities

When communicating load figures using verbal communication between the person reporting the load and the person responsible for the load planning task, the person responsible for the load planning task shall always read back the information given according to the same guidelines above.

Notes:

1. *The same principle will apply when the person responsible for the load planning task is verbally communicating information to the person responsible for the loading supervision task, and when loading information is verbally communicated between loading team members and loading team supervisor.*
2. *To further prevent miscommunication during the aircraft turnaround handling and close out reconciliation process, implementation of standard verbiage for load discrepancy communication (see below table) should be used between the person responsible for the loading supervision task and person responsible for the load planning task and between the person responsible for the loading supervisor task and loading team members.*
3. *Efficient communication devices (e.g., headsets, high-performance radio, phones) should be provided to relevant team members for verbal communication to avoid misunderstanding in a noisy environment.*

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Discrepancy	Description
Offload	Planned load removed from aircraft for any reason (e.g., missing passenger, damaged cargo)
Position Change	Change of position within the cargo compartment or change of cargo compartment
Missing	Load not received for any reason, but planned on Loading Instructions
Weight	Difference between deadload weight as shown on Loading Instructions and actual weight of load
Incorrect Load	Mismatch of received load for flight (e.g., incorrect ULD number, wrong flight number, incorrectly documented special load)
Restraints	Missing, damaged or malfunctioning floor locks, load restraints and/or nets
Technical	Compartment technical issues (e.g., faulty locks, unserviceable stanchions, broken/missing divider nets, other defects)
Not Planned	Any deadload not included in Loading Instructions

4.5.1.3 Actions Prior to Unloading

Prior to unloading, the person responsible for the aircraft loading supervision task shall:

a. Brief the unloading team members on safety and unloading requirements in accordance with the Off-Load Plan (as applicable) including any special requirements, e.g., unloading sequence, special load items, restraint requirements, aircraft defect. Check to ensure the briefing and unloading instructions are understood by the persons responsible for aircraft unloading.

   Notes:

   1. *The Off-Load Plan, should be issued prior to aircraft arrival.*
   2. *For transit flights, an Off-Load Plan, may be issued.*

b. Verify the arriving aircraft registration with the registration on the LDM/Off-Load Plan.
c. Ensure the necessary equipment for unloading is available on the aircraft parking stand (see **4.1.1 - Actions Prior to Aircraft Arrival** (c)).

4.5.1.4 Actions During Unloading

During unloading, the person responsible for the aircraft loading supervision task shall:

a. Cross-check the ULD/load against the Off-Load Plan as the unloading progresses to ensure the correct sequence of unloading takes place in accordance with the specified timelines.
b. For ULD unloading:
   1. Carry out visually detectable damage checks during unloading in accordance with **4.5.9.3 - Checking ULD Conditions on the Ramp**.
   2. Check ULD placards have been properly filled out with the correct information in accordance with **4.5.9.2 - Identification/Labeling of Unit Load Devices**.
   3. Perform a cross-check against Off-Load Plan to ensure the following details correspond with each other:
      i. ULD number shown on the ULD identification tag
      ii. ULD identification number printed or stamped on the ULD
      iii. Confirm ULD unload information codes (e.g., X = empty ULD)
   4. Ensure that there are no signs of leakage from ULDs.

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c. For bulk unloading:
    1. Perform a visual inspection of all items during unloading to ensure no damage/leakage.
    2. Ensure the load distribution is in accordance with the LDM.

d. Ensure special equipment (e.g., tie-down straps, load spreaders, plastic sheeting for wet cargo) is unloaded, as required.
e. Log any irregularities in the unload sequence noted during unloading and report as per operating airline procedures (see **4.5.1.5 - Actions After Unloading** (e)).
f. Ensure, where applicable, transit loads are not offloaded or over-stowed.
g. If required, Delivery at the Aircraft (DAA) bags/items shall be delivered as per operating airline requirement.
h. If possible, organize immediate transportation of arriving ULDs and/or carts containing baggage, cargo and/or mail (see **4.5.6.2 - Load Transportation** and as per specified timelines.

If the unloading procedure is interrupted for any reason and the ground handling team are required to leave the aircraft, ensure all aircraft doors are closed immediately unless specifically instructed by the crew.

4.5.1.5 Actions After Unloading

After unloading has been completed, the person responsible for the aircraft loading supervision task shall:

a. Carry out a hold inspection, in accordance with **4.5.5.1 - General** and action issues accordingly.
b. Ensure the nets and straps are properly stowed and cargo access door checks are performed in accordance with **4.4.3 - Cargo Hold Access Doors** in case the cargo access doors need to be closed.
c. Sign the Off-Load Plan, and in doing so confirm that:
    1. Aircraft has been unloaded in accordance with the Off-Load Plan
    2. Load was unloaded in a manner that prevents damage or spillage

d. Close the cargo access doors if the aircraft is to be left unattended (see **4.4.3.3 - Closing Cargo Hold Access Doors**).
e. If irregularities are reported during the unload sequence report in IQSMS.

ULD Tags should only be removed from a ULD if the ULD has been emptied of its contents or the contents have otherwise been changed. If the contents have changed, a new Tag should be printed and attached to the ULD.

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4.5.1.6 Actions Prior to Loading

Refer to the Loading Sequence section of the Aircraft Technical Specifications chapters for specific loading procedures applicable to the different aircraft types operated by or on behalf of DHL.

Prior to loading, the person responsible for the aircraft loading supervision task shall:

a. Brief the loading team members on safety and loading requirements, including any special requirements, e.g., loading sequence, special load items, restraint requirements, aircraft defect.

   Note: Check to ensure the briefing and Loading Instructions are understood by the persons responsible for aircraft loading.

b. Verify the aircraft registration with the registration on the Loading Instructions (GOALS or printed Load Plan).

c. A walkaround of the aircraft is conducted to inspect for damage and hold inspection carried out prior to commencing loading, in accordance with the requirements detailed in **4.5.5.1 - General**. An Aircraft Damage Inspection Sheet (**Annex B: Aircraft Damage Inspection Sheet**) shall be completed and any damage found shall be reported in the IQSMS reporting system. If any damage is found, report it immediately to flight crew and/or maintenance staff.

d. Assemble and check loads against the Loading Instructions to ensure compliance with:
   1. Special handling codes and related information.
   2. Destination airport. (Confirm destination of the loads)
   3. Preliminary Notification to Captain (NOTOC), where applicable.
   4. Special load requirements, e.g., live animals, perishable, valuables, DG, temperature sensitive products etc.

e. Ensure all loads are protected from adverse weather, and particular attention shall be given to special loads (e.g. Live animals, perishables, time-sensitive cargo).

f. Allow no contamination (e.g., snow, ice, water, wood, plastic) on the ULD or bulk load/loose load pieces.

g. Ensure special equipment is available (e.g., tie-down straps, load spreaders, plastic sheeting for wet cargo), as required.

h. Where possible, organize and position the ULDs and/or carts containing baggage, cargo and/or mail in hold and load order.

i. For ULD loading:
   1. Carry out a visually detectable damage check prior to loading in accordance with **4.5.9.3 - Checking ULD Conditions on the Ramp**.

      Note: Ensure all loaded ULDs are serviceable. Do not load damaged ULDs.

   2. Ensure ULD placards are properly filled out with the correct information as detailed in **4.5.9.2 - Identification/Labeling of Unit Load Devices**.
   3. Perform a cross-check to ensure the following identification numbers correspond with each other:
      i. ULD number shown on the Loading Instructions
      ii. ULD number shown on the ULD identification tag
      iii. ULD identification number printed or stamped on the ULD
   4. Cross-check ULD gross weights.
   5. Confirm ULD load information codes (e.g., X = empty ULD).
   6. Ensure there are no signs of leakage from ULDs.
   7. Ensure all ULDs are safe to move and will not shift, roll, or topple while maneuvering/loading onto the aircraft.

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j. For bulk loading, confirm
    1. Cart identification labels are correctly filled in where applicable.
    2. Loose pieces/weight information is correct, where applicable.
    3. A visual inspection of all items of bulk load shall be performed prior to loading to ensure there are no signs of damage or leakage that may damage or contaminate the aircraft.

k. Ensure that all locks in the intended path of ULDs during Loading are in the down position.

l. Ensure all Transit loads have remained on board and are reflected on the outbound Load sheet, visually inspecting the loads if required.

4.5.1.7 Actions During Loading

During loading, the person responsible for the aircraft loading supervision task shall:

a. Cross-check the ULD/bulk load against the Loading Instructions (GOALS or printed Load Plan) as the loading progresses to ensure the correct sequence of loading takes place in accordance with the specified timelines (e.g., where applicable, transit loads are not over-stowed for transit stations).

   In case GOALS fails during the loading process, a printed copy of the latest version of the Load Plan shall be used to load the remainder of the aircraft. The Load Verification process (See **4.5.6.5 - Load Verification Process**) shall be done for the remainder of the aircraft.

b. Regularly check with loading staff members who are physically loading the aircraft and, in particular, attend to any issues raised concerning loading.

   Notes:

   a. Stop/suspend loading operations where an irregularity is discovered e.g., aircraft/cargo hold/ULD damage, damage to or leakage from load items, cargo loading system malfunction
   b. Log any irregularities in the load sequence noted during loading and report as per operating airline procedures (see **4.5.1.8 - Actions After Loading**).

c. Liaise with the person responsible for the weight and balance calculation task and receive authorization for any deviations, including any last-minute changes to the Loading Instructions. See **5.3.5 - Last Minute Changes**. The person responsible for the weight and balance calculation task shall check the deviation and confirm whether possible or give an alternative solution.

   Note: Any load information change between the Loading Instructions and actual loading (e.g., changes in transfer bag figures, cargo figures) shall be communicated to the person responsible for the weight and balance calculation task as soon as known to avoid unnecessary reloads, weight and balance issues, and last-minute pressure.

d. If an authorized change of load order occurs, provide confirmation of change to the persons responsible for the aircraft loading task prior to recommencing loading in the hold.
e. Protect all loads from adverse weather. Special attention shall be given to live animals and/or perishables.
f. Ensure special loads are handled and loaded as per instructions provided.
g. Where applicable remove any loose plastic or any other material used to protect load from bad weather.
h. Visually inspect all loads requiring special handling to ensure they are secured against shifting. Ensure all necessary nets have been closed. See **4.5.7 - Securing of Load**

If the loading procedure is interrupted for any reason and the ground handling team are required to leave the aircraft, ensure all aircraft doors are closed immediately unless specifically instructed by the crew.

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4.5.1.8 Actions After Loading

After loading has been completed, the person responsible for the aircraft loading supervision task shall:

a. At the completion of loading, receive confirmation of the following from the persons performing the aircraft loading task:
    1. Loading status of the aircraft is in compliance with the latest edition of the Loading Instructions (GOALS or printed Load Plan).

        When using a printed Load Plan, the print sequence number for the Load Plan and Load Sheet will appear in the top right-hand corner of the Load Sheet. Make a final comparison to ensure the Load Plan used is as shown on the Load Sheet.

    2. Loads are secured and that all locks, stops, nets, net stanchions, fire blankets are raised, closed, locked or installed and that load securing is correctly applied (see **4.5.7 - Securing of Load**)

b. Where additional signature fields are required to be completed on a printed Load Plan (e.g., by the Team Leader performing the loading of each hold), ensure the Team Leader(s) have signed the required fields.

    Note: Team Leader is the term used to identify the person responsible for ensuring the load is secure, all locks and/or nets raised. The Loading Supervisor is the term used to identify the person responsible for loading the aircraft in accordance with the Loading Instructions and signing the certification to that effect.

c. Sign the Load Sheet, and in doing so confirm that:
    1. Aircraft has been loaded in accordance with the final edition of the Load Sheet including any authorized changes.
    2. Load is secured (in a manner that prevents movement or spillage during flight) and locks, stops, nets, fire blankets are correctly installed, raised, locked.

    Note: In cases of aircraft diversions or transit stops, aircraft doors may remain closed. Responsibility for loading in accordance with the loading instructions, and raising of all locks, rests with the origin station of the previous flight. In this case, the Loading Supervisor at the diversion or transit station may add a note to the effect of “Aircraft doors have not been opened and the aircraft remains loaded in accordance with the previous flight’s loading instructions” next to their signature on the Load Sheet.

d. If applicable, sign a NOTOC to confirm or otherwise state that:
    1. There was no evidence of leakage from the package(s) or any leakage from the ULDs loaded on the aircraft.
    2. The package or ULD is loaded in the designated position and secured.

    Note: The Load Sheet and the NOTOC shall be retained in accordance with applicable regulations.

e. Report any irregularities encountered during the load sequence
f. Ensure cargo hold access door checks are performed in accordance with **4.4.3.3 - Closing Cargo Hold Access Doors**
g. Ensure the flight documents, specifically the final signed NOTOC, Load Plan and Load Sheet, are presented to the Flight Crew after loading completion and a minimum of 10 minutes prior to departure.

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h. Collect the following hard copy documents and file with the local NCG or nominated department, to be held for a period of no less than 90 days or as required by local regulations:

- Offload Sheet signed by the loading supervisor
- Load Sheet signed by both Commander & Load Supervisor
- Copy of flight release, signed by the Commander (if appropriate)
- Signed copy of the NOTOC
- Load Plan bearing the signature of the responsible for the main- and lower-decks, if applicable
- Aircraft Damage Inspection Sheet signed by the loading supervisor or whoever completed the checks
- Aircraft Technical Log Sheet (if appropriate if no maintenance support on station).

  Exception: A copy of the flight release and aircraft technical log do not need to be kept as hard copy documents if they are available electronically (i.e. airline is using an Electronic TechLog ETL).

- Fuel order / Receipt (if appropriate)
- Any work orders for additional services
- Security report (if appropriate)
- Completed aircraft sealing forms
- Flight Fuel Record (MEA Only)

See Americas Regional Variation **3.6 - Paperwork Procedures**.

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4.5.2 Aircraft Ground Stability

Unloading or loading may cause the aircraft to become unstable or could cause tipping. For some aircraft types, a tail stand or nose tether is available.

A critical aft centre of gravity condition may affect the aircraft's ground stability, leading to a tail-tip situation. Factors that may affect the aircraft's ground stability include

- Aircraft parking on a gradient
- Aircraft parking with their nose into strong winds
- Uncontrolled movement of ULDs aft of the aircraft centre of gravity.

To maintain ground stability, "step un-loading" and "step-loading" are required. This means that the aircraft holds are un-loaded and loaded in a sequence as defined in the relevant Aircraft Technical Specifications chapter.

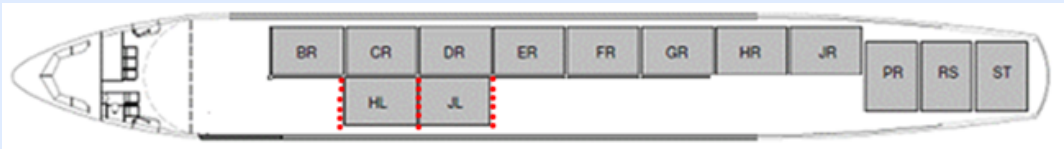
If detailed information about the unloading and loading sequence is unavailable, as a general principle for aircraft sensitive to tail tipping, ensure the sequence below is adhered to:

a. Unload the aft hold first.
b. Unload the main deck in sequence to always have more load in front of the wing box than aft of the wing box.
c. Unload the forward hold last.
d. Load the forward hold first.
e. Load the main deck in sequence to always have more load in front of the wing box than aft of the wing box.
f. Load the aft hold and bulk last.

Note: If this sequence cannot be followed, check with the operator for instructions about the correct unloading/loading sequence.

On certain aircraft it is necessary to "stage un-load" or "stage load" ULDs on the main-deck as part of the step un-loading or step loading process. This is where a ULD is held in the doorway as a counter-ballast until the next ULD to be un-loaded or loaded has been moved to a position where it is available to replace the ULD held in the doorway. This ensures that there is always a ULD held in a forward position to act as a counter-balance when the aft positions are being un-loaded or loaded.

Where ULDs have been temporarily positioned to act as counter-ballast, the forward and rear locks on the temporarily positioned ULDs shall be raised. This will prevent the ULDs from moving forwards or backwards if the aircraft becomes unstable during ground handling. In the below example, ULDs from positions HL and JL have been temporarily staged on position CL and DL; locks forward and aft of each ULD have been raised.



Some aircraft types require that a given weight is loaded in a forward section of the aircraft to provide counter-ballast. The exact weight and position(s) vary from aircraft type to aircraft type, refer to the Aircraft Technical Specifications chapters for specific information on any given aircraft type.

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4.5.3 Safety Requirements Specific to Aircraft Loading and Unloading

4.5.3.1 General

a. Holds and compartments shall only be entered or exited by using the appropriate loading equipment, which shall be positioned and secured at the aircraft cargo access door.

Exception: For smaller aircraft see **4.5.3.4 - Bulk Loading and Unloading**

b. Loading equipment shall remain in position while staff are still in the cargo hold.
c. Equipment operators shall ensure other staff are not entrapped by movement of loads, pallets and/or containers, either in the aircraft or on the loading equipment.
d. Carts shall not be used to gain access to cargo holds.
e. Staff shall walk around chains of carts and dollies to access required areas. Do not walk or stand between carts and dollies even when they are stationary on the ramp.
f. Hinged side gates of loaded carts shall be lowered carefully in case loads fall out and cause injury.
g. Take care when pulling or pushing carts, especially when ramp conditions are slippery. When necessary, obtain assistance.
h. Use correct manual handling techniques and practices when handling heavy items. Obtain assistance when moving heavy articles.

Precautions must be taken when manoeuvring large or heavy items within the holds or main deck to prevent damage to the floor. Crowbars or other implements should not be used directly upon the aircraft floor.

4.5.3.2 Additional Crew Members, Groom and Cargo Attendant Handling

The handling of the cargo attendant(s) in respect of de-boarding, boarding, baggage and security checks must be arranged locally, after pre-advice from departments either the respective airline Operations Control Centre or a responsible DHL entity such as NCG or ENCC.

- For safety and security reasons, cargo attendants or other ACMs are not allowed to stay on board unattended.
- One or more crew members must be on board before any boarding activities commences. Contact the Ramp Supervisor to obtain boarding clearance from the crew.
- Cargo attendants or other ACMs must be handed over personally to the crew.

Food, equipment and accessories necessary for the care of horses during flight may be loaded adjacent to the horseboxes, provided all items are adequately restrained.

DHL security rules require a documentation of all categories of ACMs (cargo attendants, grooms, deadhead-crew members, etc). It is mandatory that copies of flight coupons are attached to the trip file of the respective flight.

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4.5.3.3 Unit Load Device Loading and Unloading

a. For ULD loader operations, see **3.1.3.8 - Unit Load Device Loader (i.e. High-loader or K-loader)**
b. Inspect all ULDs before loading/unloading to ensure no nets, straps or protective materials can drag or get jammed in rollers, ball mats or wheels of power drive units (PDUs).
c. Push (do not pull) ULD on/off dollies and loaders where possible.
d. ULDs on dollies or transporters shall be secured to prevent movement using locks, stops or rails, except when the load is being transferred to/from the equipment.

Keep feet clear of ULDs when manoeuvring on the aircraft.

Cargo Loading Systems (CLS) shall only be used by staff who have been trained in using that specific CLS.

Do not place ULDs directly on the ramp surface.

During loading/unloading operations:

1. To avoid personal injuries (e.g., slips, trips and falls) when walking inside the cargo holds, do not step on cargo loading system components (e.g., restraints, PDUs, roller tray(s)) or sloped side walls except where dedicated step positions are provided.
2. When walking inside the cargo holds, do not step on cargo loading system components (e.g., restraints, PDUs, roller trays) or sloped side walls except where dedicated step positions are provided.
3. Staff shall remain clear of the ULD movement path at all times.
4. Moving ULDs may cause injuries to staff.
5. Only raise locks once the ULD comes to a complete stop.

For Cargo Loading Systems (CLS) equipped with PDUs:

1. When ULDs become stuck, staff may assist with the dislodging of the unit after coordinating with the CLS equipment operator. In such cases, all staff shall be aware of sudden ULD movements.
2. The CLS equipment operator shall always be aware of where loading staff are positioned.

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4.5.3.4 Main Deck Loading of Freighter Aircraft

Observe the following additional requirements for unloading/loading of ULDs on the main deck of freighter aircraft:

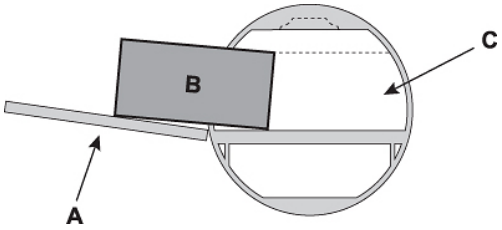
a. Ensure the ULD loader is in position before removing the safety net. Install the safety net immediately after loading/unloading is finished.

   Install door sill guards where provided prior to loading/unloading of the aircraft.

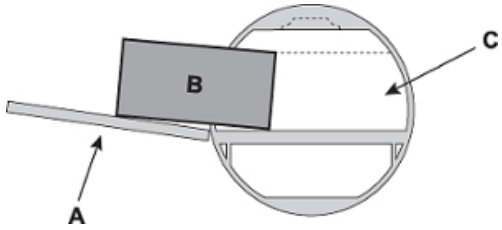
b. Monitor the clearance between the aircraft and GSE while moving cargo into/out of the main deck. Keep in mind that the vertical movement of cargo aircraft during loading/unloading and fueling can be up to 70 cm (27.5 in.). Ensure the ULD loader is level with the height and angle of the cargo compartment floor. To avoid main deck cargo access door damage by strong winds, refer to the Aircraft Technical Specifications chapter for high-wind condition limits.

Avoid bridging and cresting while loading/unloading heavy cargo, as this can cause damage to the aircraft and/or ULD.

Cresting



Bridging



Alpha-Numeric	Description
A	ULD Loader
B	Cargo
C	Main Deck

To avoid serious injury during loading/unloading with a CLS and PDU in the aircraft, if applicable, do not use the outside control panel when any staff are present inside the cargo compartment. Use only the internal control panel to keep a view of staff in the cargo compartment. ULD locks may only be latched or released when the select switch is in “local/inside” mode.

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4.5.3.5 Bulk Loading and Unloading

a. For belt loader operations, see **3.1.3.7 - Belt Loader**.
b. Where possible avoid placing loads directly on the ramp, especially if the ramp is contaminated.
c. When loading/unloading aircraft directly from the ramp without the use of equipment:
    1. Position carts/dollies to/from the aircraft in a parallel direction to the fuselage, maintaining a gap of at least 1m (3 ft.) from the fuselage.
    2. Always turn tractors and carts/dollies away from the aircraft.

Note: For any load items that cannot be safely loaded directly from the ramp, appropriate loading equipment (e.g., belt loader) should be used to avoid injury or damage.

d. Ground staff carrying out bulk loading task shall:
    1. Use the right lifting techniques to reduce on the risk of injury
    2. Be accounted for once inside the aircraft hold and after completion of loading for safety reasons
    3. Ensure the cargo nets in the bulk compartment are fastened securely prior to exiting the compartment
    4. Ensure lights have been turned off prior to closing the compartment door, unless the compartment is loaded with AVI that require light.

e. The maximum allowed weight for a piece loaded in the bulk compartment of a containerised aircraft is 30 kg (66 Lb). Non-conveyable (NCY) pieces shall not be loaded in the bulk compartment of a containerised aircraft. (See Americas Regional Variation **2.1 - Loose Loading: Single Piece Loading Limit**)
f. Dangerous Goods shall not be loaded in the bulk compartment of a containerised aircraft, with the exception of Dry Ice (ICE), Biological Substances Category B (RDS), and Dangerous Goods in Excepted Quantities (REQ), all of which must be secured to prevent any movement.

Where a Sliding Carpet is used in the hold, notify maintenance of any system or compartment irregularities, as they may result in operator injury or equipment damage. For aircraft having inward opening doors the System is equipped with a door protecting Safety Flap. Do not use the Safety Flap as an automatic stop function. If cargo becomes jammed against the Safety Flap, run the system in the load direction by selecting LOAD and pressing the RUN-button. The cargo can then be removed.

Cargo requiring special tie-down shall not be loaded on the Sliding Carpet as it is not equipped with tie-down points. If no cargo is loaded, the Sliding Carpet shall be in the fully retracted position.

To operate the Sliding Carpet:

1. Remove the compartment cargo net
2. Unload the first stack of cargo. Run the System in the UNLOAD direction by selecting UNLOAD and pressing the RUN-button to bring the next stack of cargo within reach. The process is continued until unloading is completed
3. **Do not** convey cargo over the system ramp, it may activate the Moveable Bulkhead's release system. If activated, the release system should be reset prior to the loading to prevent possible damage to the system or the compartment



There is a risk of suffocation due to poor ventilation in the holds.

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4.5.3.6 Shipments Requiring Special Handling

a. **General**

1. All shipments requiring special handling shall be identified on the load message (LDM) or container pallet message (CPM) for arriving flights or under a NOTOC for departing flights.
2. Comply with any special handling requirements. Be alert for special load and/or dangerous goods shipments.
3. Always follow the orientation markings and/or special handling instructions, as applicable, while handling.
4. Make sure packages with directional handling labels are kept in the correct orientation (e.g., THIS WAY UP).
5. Always observe the specific instruction labels and markings (i.e., Cargo Aircraft Only (CAO), FRAGILE, TOP, THIS SIDE UP).
6. Ensure shipments labeled “Cargo Aircraft Only” are not loaded into a passenger aircraft.
7. Always handle fragile items with care.

b. **Dangerous Goods**

1. Transportation shall be in accordance with the IATA DGR. Refer to the corresponding sections of the Aircraft Technical Specifications chapters for airline specifications or restrictions.
2. Ensure dangerous goods are handled and secured or stowed in a manner that:
    i. Prevents damage to packages and containers during aircraft loading and unloading.
    ii. Provides for separation and segregation of packages on the aircraft to prevent interaction in the event of leakage.
    iii. Prevents movement that could change the orientation of packages on the aircraft.
    iv. Is in accordance with the information provided on the notification to captain (NOTOC).
3. Incase dangerous goods package or shipment appears to be damaged or leaking, to ensure:
    i. Such package or shipment is prevented from being loaded into an aircraft.
    ii. In the case of leakage, conduct an evaluation to identify and prevent from transport any other cargo, baggage or transport devices that have become contaminated by the leakage of dangerous goods, and the removal of the hazardous contamination.
    iii. If already loaded, the package or shipment is removed from the aircraft.
    iv. Immediate notification of the customer airline and relevant authority.

c. **Live Animals**

1. Transportation shall be in accordance with the IATA Live Animals Regulations (LAR). Refer to the corresponding sections of the Aircraft Technical Specifications chapters for airline specifications or restrictions.
2. During handling of live animals, ensure that they are:
    i. Loaded and secured into suitable aircraft compartments as directed by the Loading Instructions
    ii. Separated from foods, dangerous goods or other AVI that are natural enemies
    iii. Handled with care and in a manner which minimizes the waiting period and is in compliance with the shipper's specific handling instructions, if required
    iv. Not exposed to adverse weather or environmental conditions during transportation, loading and unloading
    v. Not loaded in the door area of an aircraft compartment
    vi. Loaded forward of any ICE carried in the same compartment to ensure fresh air supply
    vii. Loaded higher than any ICE carried in the same compartment prevent oxygen exhaustion

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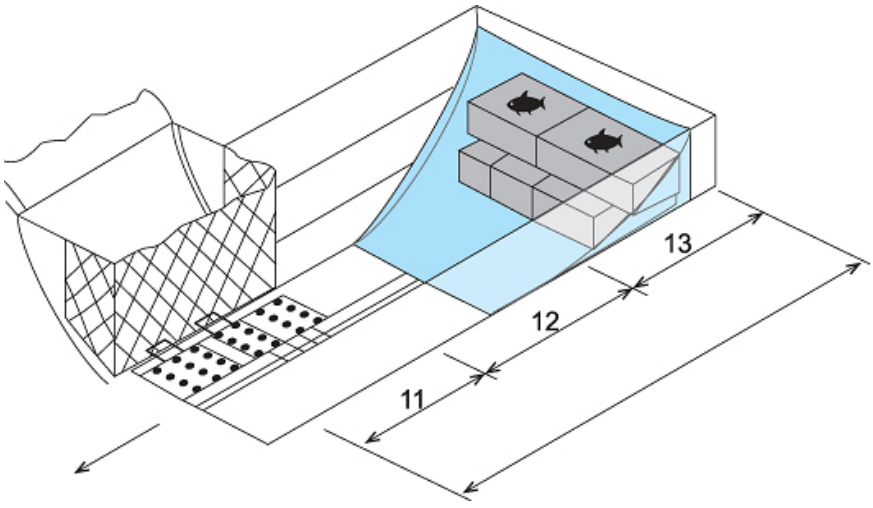
d. **Wet Cargo**

1. The following types of cargo, if not subject to the IATA DGR, shall be considered as wet cargo:
    i. Liquids in watertight containers
    ii. Wet materials not packed in watertight containers (e.g., fish packed in wet ice, fresh or frozen meat, casings (fresh animal guts), wet hides, skins)
    iii. Goods that by their nature may produce liquid (e.g., larger live animals (usually mammals) where the presence of feces and urine is likely)
    iv. Fruits/vegetables with high moisture (e.g., berries)

Note: Live animals such as birds, reptiles, insects and certain mollusks (terrestrial) in appropriate animal containers do not pose a higher risk for corrosion than normal baggage/cargo and are, therefore, exempted. Refer to IATA LAR.

Spillage or leakage during carriage by air could lead to corrosion or other damage to the aircraft structure or its components, or damage to other loads. In case of spillage or leakage, inform responsible ground staff, maintenance and flight crew if on board.

2. The person responsible for the aircraft loading supervision task shall ensure the wet cargo is properly packed and free of leakage. Do not load damaged or leaking packages.
3. Loading Precautions:
    i. Spread plastic sheets or tarpaulins to protect the aircraft floor and walls by catching any spillage or leakage. Sufficient plastic material shall be used so that the edges can be folded over the first layer of the consignment of wet cargo. Additionally, apply absorbent material on top of the plastic sheets.
    ii. For wet cargo in containers that are not watertight, follow operating airline procedures.



Notes:

1. *When wet or damp, the strength of some packaging can be considerably reduced. Special attention shall be given to avoid the crushing of packages when stacking to several levels.*
2. *For reference regarding packing of wet cargo and temperature sensitive packaging, refer to IATA Perishable Cargo Regulations (PCR) and IATA Temperature Control Regulations (TCR).*

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e. **Perishable and temperature-sensitive healthcare products**

During transportation, loading and unloading of perishable and temperature-sensitive healthcare products, ensure that they are:

1. Handled in a manner to minimize the waiting period
2. Not exposed to adverse environmental conditions

Notes:

1. *Perishables must be moved into storage (e.g., cooler, freezer) appropriate for the type, in accordance with the Perishable Cargo Regulations (PCR).*
2. *Pharmaceuticals must be moved into storage (e.g., cooler, freezer) appropriate for the type, in accordance with the Temperature Control Regulations (TCR).*

f. **Dry Ice**

Dry ice (solid carbon dioxide) is used as a refrigerant for temperature sensitive health care products e.g., vaccines and other life sciences products to ensure that they are maintained at the required temperature throughout the supply chain.

1. Where dry ice is present in the cargo being loaded or unloaded the ramp, staff must be aware of the precautions required to ensure that there is no risk of suffocation from elevated CO2 levels from sublimating dry ice.
2. Verify the documentation for the presence of dry ice as a refrigerant (code ICE) and instruct the staff that the cargo compartment shall be allowed to vent after the cargo access door is opened and before entering the cargo compartment
3. Inform the Flight Crew to keep air-conditioning and ventilation on in the cargo compartment during Loading and Un-loading when Dry Ice is present in the compartment.
4. Open the cargo compartment door and stand back. No person shall enter the hold. Cargo compartment where dry ice is present must be allowed to vent for 5 minutes after cargo compartment door is opened.
5. Cargo access doors shall remain open to clear dry ice vapors before you enter the hold or compartment.



1. There is a risk of suffocation when entering a compartment containing dry ice.
2. Anyone entering a cargo compartment before the dry ice vapor has dispersed may be overcome with dizziness and shortage of breath due to lack of oxygen. In such circumstances the person should be removed immediately to fresh air and, if his breathing is seriously affected, call a doctor

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g. **Cargo Aircraft Only (CAO)**

CAO must be loaded accessible on the main-deck or in Class C lower-deck holds as defined in the Aircraft Technical Specifications chapters.

The following need not be loaded accessible or in Class C compartments even if they are labelled as CAO:

- Substances of Class 3, Packing Group III, other than those with a subsidiary risk of Class 8
- Toxic Substances (Division 6.1) with no subsidiary risk other than Class 3
- Infectious Substances (Division 6.2)
- Radioactive materials (Class 7)
- Miscellaneous dangerous goods (Class 9)

h. **Polystyrene Beads (RSB)**

A maximum of 100 kg of Polystyrene Beads may be loaded in each Lower Deck hold. A maximum of 100 kg of Polystyrene Beads may be loaded in each ULD on the Main Deck.

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4.5.4 Unloading

4.5.4.1 Scaling Process

If the flight crew experiences a handling irregularity on takeoff, the flight crew may request aircraft scaling (weighing of all baggage and cargo on board) at the arrival station. The aircraft shall not be unloaded when a scaling has been requested until the process has been completed. Contact the airline representative for details.

4.5.4.2 Safety Precautions for Unload

a. Before positioning GSE and/or opening cargo hold access doors, perform a visual check for any signs of damage to the doors or surrounding areas (see **4.4.3 - Cargo Hold Access Doors**).
b. Check to ensure the aircraft hold load has not shifted during the flight.
    1. Verify the contour of the cargo loads passing through the doorway shall be made to ensure sufficient space between the doorway depressor seals and the cargo load is assured.
    2. Contact the person responsible for the aircraft loading supervision task if the shifted load will not safely exit the door.
c. Check for incorrectly loaded ULDs (i.e., locks not raised, locks or safety rails overridden).
d. Check loads/ULDs during unload for damage, leakage and load stability.
e. Check for damage to the aircraft hold as the unload progresses and also after completion of unloading (see **4.4.3 - Cargo Hold Access Doors**).

    Note: Immediately report any discrepancies (e.g., spills, unusual fumes or smells) prior to or during the unloading process to the person responsible for the aircraft loading supervision task or as required by the operator or authority.

4.5.5 Cargo Hold Inspection (Pre-Departure Security Check)

4.5.5.1 General

All aircraft must undergo a Cargo Hold Inspection (otherwise known as Security Check) before departure. This is a visual inspection of the aircraft interior to ensure no items are out of place, and no unauthorized items or persons are in the aircraft. The aircraft security check shall be conducted prior to loading and contain a check of the main-deck, containerized lower deck and loose cargo holds, and any rubbish bins on the aircraft. Sterility shall be maintained until and throughout the cargo loading and pre-departure process.

a. A cargo hold inspection shall be performed:
    1. After aircraft unload is complete.
    2. Prior to loading if this does not follow immediately after unloading is complete.
    3. When the aircraft was unattended between unloading and loading.
    4. When there was a change of persons responsible for the aircraft loading and/or supervision task.
b. The person undertaking the cargo hold inspection shall perform a visual check of all cargo holds to ensure:
    1. No damage to compartment floors, walls, ceiling, door frames, panels, door.
    2. No missing, damaged or malfunctioning floor locks, load restraints or nets.
    3. No spills.
    4. No loads other than transit loads have been left on board the aircraft.
    5. Any other items that should not be present in the hold have been unloaded.
c. Prior to commencing the loading of the aircraft, the person responsible for undertaking the cargo hold inspection shall provide positive confirmation to the person responsible for the aircraft loading supervision task that the inspection has been carried out, if appropriate.

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c. Any damage or discrepancies observed shall be reported to the person responsible for the aircraft loading supervision task or to the person responsible for the weight and balance calculation task (as a minimum).

Note: A check shall be conducted of a hold even if on arrival the hold was reported as being empty.

e. Any items that should not be present in the hold shall be removed.

For aircraft flying to or from the USA additional requirements apply. The pre-departure security check shall only be conducted by staff trained to fulfil the role of Ground Security Coordinator (GSC). On completion of the security check, the GSC shall complete a DHL Aircraft Security Report form. The completed DHL Aircraft Security Report form shall be retained for a period of no less than 31 days.

By signing the Loadsheet, the Loading Supervisor certifies that an Aircraft Security Check has been completed.

4.5.5.2 Cargo Hold Damage

Any damage to compartment liners (i.e., holes, tears, detachment) may reduce their effectiveness, permitting air to enter the compartment and fire suppression agent to escape, thereby reducing the capability to handle a fire event and may lead to specific loading limitations; therefore:

a. Any technical malfunction, damage or irregularity discovered shall be immediately reported to the supervisor, aircraft maintenance staff and if available, the Flight Crew. See **4.4.1 - General Safety Requirements**.
b. Adhere to any resulting load limitations in accordance with the flight crew's, aircraft maintenance or other appropriate authority's instructions.
c. Inform the onward station(s) of the load limitations according to the instructions of the airline representative if the defect cannot be rectified before departure.
d. Report the technical malfunction in IQSMS.

4.5.5.3 Spills in Cargo Holds

Spills of any substance in cargo holds or compartments must be treated as Dangerous Goods until otherwise proven. Depending on the circumstances, consideration must be given to evacuating the aircraft and immediate area.

a. Spills can occur in cargo holds during unloading and/or loading as well as in flight due to:
    1. Improper packaging
    2. Damage due to mishandling prior to loading
    3. Improper loading in the compartment
b. Spills can be of liquids, gels or materials in powdered or granulated form.
c. Spills can be hazardous, corrosive, flammable, explosive, toxic, poisonous, etc. Even water can cause serious damage to electrical components and systems.
d. Spills can be corrosive to the aircraft structure. Mercury spills are particularly corrosive to the extent that the affected aircraft structure may have to be completely replaced if the spill is not cleaned up quickly.
e. It is essential that any spill is reported immediately so that corrective action can be taken.

The spillage must be reported to the flight crew, ground engineers/maintenance, MOC, or the local technical representative as appropriate and local RCG department, for immediate action as required by the operator and possible notification of the Emergency Services. Spillage of Dangerous Goods must be reported in the RIR and RCIR systems.

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f. Initiate the local spill response plan for spill events.
g. Request information from the respective cargo terminal operator about the nature of what has leaked as well as the safety data sheet, if applicable.

4.5.6 Loading

4.5.6.1 Load Handover

The handover process between cargo handling (cargo warehouse), baggage handling (baggage make-up area) and ground handling (ramp) departments shall be done systematically to ensure a safe departure.

Depending on the airport infrastructure and/or local agreements, the handover of cargo, mail and baggage to the ramp should be done at a dedicated handover point.

4.5.6.2 Load Transportation

Prior to transporting cargo and/or mail to/from the cargo warehouse or baggage from the baggage make-up area or baggage claim area, the equipment operator shall ensure:

a. The GSE used for transportation is serviceable. For GSE operations see **3.1.3 - Safety Instructions for Operating and Working with Ground Support Equipment on the Ramp**.
b. A visual inspection of all loads is carried out to ensure:
    1. The cargo, mail and/or baggage for transport is the correct load for the departing/arriving flight(s).
    2. No nets, ropes, straps or protective materials can drag on the ground or get jammed in rollers, ball-mats or wheels.
    3. All built-up cargo/mail/baggage is safe to move and will not shift, roll or topple.
    4. There is no damage to the load.
c. All loads are protected from adverse weather via use of tarpaulins or covered carts. Special attention shall be given to live animals and/or perishables. When using tarpaulins, all straps shall be securely fastened to the cart.

4.5.6.3 Load Delivery for Departure

Depending on the location of the handover point, the person responsible for the aircraft loading supervision task or the person responsible for receiving the load shall:

a. As required by the airline and if applicable, receive all documentation, pouches and special instructions for the specific flight.
b. Carry out an inspection of all of the load to ensure:
    1. The load is correct for the departing flight(s).
    2. No damage has occurred during the transport process.
    3. There is no evidence of tampering with the load (e.g., cuts, tears to plastic foil).
    4. No nets, ropes, straps, protective materials, etc. should drag on the ground or get jammed in rollers, ball-mats or wheels while maneuvering or while being loaded onto aircraft.
    5. All dollies are serviceable, and all restraints are engaged to secure the ULD on the dollies prior to the ULD being loaded onto the aircraft.
c. Immediately report any damage of the load(s), whether it is discovered when the load arrives on stand or occurs during loading.
    1. Report torn or missing baggage tags and cargo labels.
    2. Do not load unless discrepancies are corrected.

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4.5.6.4 Loading Process

Cargo shall only be loaded in designated bulk compartments or ULDs.

a. General (see **4.5.1.7 - Actions During Loading**)
   1. Loading shall not commence if there is no Loading Instructions (GOALS or printed Load Plan).
   2. Prior to loading commencing, a cargo hold inspection shall be performed (see **4.5.5 - Cargo Hold Inspection**).
   3. Carry out a visually detectable damage check prior to loading, according to **4.5.9.3 - Checking ULD Conditions on the Ramp**.
   4. Carry out a visual inspection of all items of bulk load prior to loading to ensure no damage/leakage.
   5. Carry out a manual Load Verification (See **4.5.6.5 - Load Verification Process**) when a printed Load Plan is used.

b. Report any issues, errors, changes or other loading matters to the person responsible for the aircraft loading supervision task immediately.
c. Any signs of hold damage must be reported immediately.
d. While loading ULDs into position in the compartment, the Team Leader or Supervisor shall ensure:
   1. When ULDs are loaded, raise/lock the ULD restraints to secure the ULD in applicable position, in accordance with the Loading Instructions.

      Locks shall be raised by hand and a double check shall be conducted to ensure that the locks have been secured correctly.

   2. While loading ULDs:
      i. The edges are either guided by the safety rails or fit under the stops/locks/guides.
      ii. The height and contour of the pallet allows for sufficient clearance in the door opening and a minimum safety distance of 5cm (2in) is maintained between the cargo contour and compartment linings and ceiling.
      iii. Control the speed at which ULDs are moved within the aircraft, slowing the ULD prior to reaching its allocated position to prevent crashing.
      iv. They have no protrusions or overhangs that will damage the aircraft cargo access door opening or the interior of the aircraft cargo hold.
      v. On single track aircraft, on all positions aft of Position 1, curtains are facing forward. Where a ULD on Position 1 has a sloped contour on the lateral (front/back) side, the sloped side is facing forward.

Notes:

1. *A tactile check shall be performed by checking the security of each lock to ensure serviceability. A systematic double-check of the restraint system and of special loads (e.g., heavy (HEA), AVIH, human remains (HUM), etc.) before departure is recommended.*
2. *All ULD restraints shall be raised.*
3. *ULD restraints do not have to be raised in cargo holds that are completely empty, unless otherwise specified in the Aircraft Technical Specifications chapter.*
4. *If applicable, ensure fire barriers are installed as the hold is loaded.*

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e. While loading into bulk holds, the person carrying out the loading of baggage/cargo/mail shall:

1. Load in accordance with Loading Instructions.
2. Cross-check cart labels to ensure the load is correct.
3. Check cargo, mail and baggage labels to ensure correct destination/flight number.
4. Ensure any leaking or damaged loads are not loaded and the supervisor is informed immediately. Any contaminated load is kept separately.
5. Ensure applicable special load items are tied down (see **4.5.7 - Securing of Load**) or otherwise secured in accordance with operating airline requirements.
6. Install/close/secure compartment/bay divider nets, barrier nets, fire curtains, door nets and stanchions, as applicable.
7. Ensure light packages are not loaded or wedged between heavier items.
8. Ensure a minimum safety distance of 5cm (2in) is maintained between the load and aircraft hold ceiling to avoid any obstruction or damage to aircraft smoke detector/fire suppression system.

   Note: A compartment fully loaded with loose cargo up to a 5 cm (2”) clearance from the ceiling is considered 100% volumetrically full and compliant with loose load securing requirements.
9. Loads shall be correctly stacked to achieve maximum volume.
10. Confirm the final loading status to the person responsible for the aircraft loading supervision task.
11. Check that all carts and containers have been emptied of cargo for the bulk holds.

Notes:

1. *Between unload and onload, compartment nets shall be secured inside aircraft compartments and not left hanging outside to avoid clips and attachment points striking the fuselage, especially during adverse weather.*
2. *Ensure the ramp area is clear of all wooden and/or plastic pallets and other load related material after completion of loading or unloading.*

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4.5.6.5 Load Verification Process

The Load Verification (LV) process is intended to reduce the likelihood of loading errors when loading the aircraft using a printed Load Plan instead of GOALS. A Loading Agent with no knowledge of or access to the printed Load Plan, shall complete an independent Load Verification Log which identifies the ULDs and bulk material actually loaded on board the aircraft.

The LV Log shall be completed for the Main Deck, Lower Deck, and Bulk Hold compartments, as applicable. It shall be completed using the template shown below, onto which the following information shall be entered for each ULD as it is locked into its final position, or bulk material as it is loaded into its final bulk compartment:

- ULD or Loose Load Identifier (enter ULD Prefix/Serial Number/Owner Code)
- Gross Weight
- Final Loading Position or Bulk Hold Compartment
- Optionally, Configuration (Left side, Centre, or Right side) of the Final Loading Position

Additionally, the Flight number, Origin, Destination, Aircraft Registration, and whether the ULD Gross Weights are indicated in Kilograms (Kg) or Pounds (Lb) shall be indicated on the LV Log.

The LV Log shall be completed by a Loading Agent who is part of the team locking the ULD into its final loading position or participating in the loading of bulk material, but does not carry a copy of the Load Plan for the flight. If a separate team is used for the Lower Deck and/or Bulk Hold, a Loading Agent on that team shall complete the Log for these compartments. The LV Log shall be completed as follows:

- The Loading Agent shall be present in the compartment whilst completing the LV Log.
- The LV Log shall be filled in the loading sequence that ULDs are locked into their final position. (In the Americas region, the positions on the LV Log may be filled in sequence of nose to tail to facilitate the cross-check with the Flight Crew. See **4.5.6.5.2 - Flight Crew Load Verification Cross-check for American Operators**)
- The *Final Position* field shall only be filled in when the ULD is locked into its Final Loading Position.
- If a position is left void, *Void* shall be entered in the ULD ID field, and the void position number shall be entered in the *Final Position* field.
- FAK and ballast shall be entered in the LV Log.
- If a LV Log is being completed for a Transit flight, the visible transit ULDs shall be entered on the LV Log first, followed by the ULDs loaded in the Transit location.
- If a LV Log is being completed for a portion of the aircraft due to GOALS failure during the loading process, the last visible ULDs loaded with GOALS shall be entered on the LV Log first, followed by the remaining ULDs loaded without GOALS.
- When loading has been completed, the Loading Agent shall sign the LV Log to indicate that they have checked that all ULDs containing Dangerous Goods have a DG tag correctly completed and attached, or that, in the case of Bulk material, any DG has been segregated and secured correctly. The Loading Agent shall also sign the LV Log to indicate that all locks in the compartment have been raised.

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Finally, when loading has been completed, a verification shall take place to cross-check the printed Final Load Plan and the handwritten LV Log (main-deck, lower-deck and bulk holds) to ensure that the aircraft has been loaded as per the Loading Instructions from the Load Plan. If there are no discrepancies, then the Supervisor shall sign the respective documents to confirm verification was performed, and enter the Load Sheet and Load Plan printout numbers on the LV Log. Where the loading is performed by a third-party provider, the DHL Supervisor shall ensure that the Load Verification Cross-Check for all compartments is performed by the third-party Team Lead / Supervisor / Turnaround Coordinator and the LV Log has been signed. If a Load Verification Cross-Check was conducted and an updated final load plan is submitted, the Load Verification Cross-Check shall be repeated using the latest documentation.

If there is a discrepancy between the handwritten LV Log and the printed Final Load Plan, the compartment shall be visually inspected or the compartment unloaded until the discrepancy has been identified. In case of weight discrepancies between the ULD tag(s) and the printed Load Plan, the ULD(s) shall be reweighed. For Empty ULDs (ELD), discrepancies greater than +/-1kg between the Tare Weight on the Load Plan and the Tare Weight on the ULD decals shall be reported to **global.uld.repair@dhl.com**

The handwritten LV Log shall be retained locally along with the Load Sheet and Load Plan for 90 days.

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4.5.6.5.1 Load Verification Log Template

Main Deck Load Verification Log

Never copy from load plan, write **final** position only when locked

Date	Origin	Dest.	Flight #	Registration	Log completed by (print name of Loading Agent)

Weights are recorded in (circle one): Pounds (Lb) Kilograms (Kg)

ULD ID (Prefix/Serial #/Owner Code)	Weight	Final Position	Left Row*	Centre Row*	Right Row*	Remarks

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Lower Deck Load Verification Log

Never copy from load plan, write **final** position only when locked

Date	Origin	Dest.	Flight #	Registration	Log Completed by(print name of Loading Agent)

Weights are recorded in (circle one): Pounds (Lb) Kilograms (Kg)

ULD ID (Prefix/Serial #/Owner Code)	Weight	Final Position	Left Row*	Centre Row*	Right Row*	Remarks

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Loose Load Verification Log					
Never copy from load plan, write **final** position only when locked					
Date	**Origin**	**Dest.**	**Flight #**	**Registration**	**Log Completed by(print name of Loading Agent)**
Weights are recorded in (circle one):			Pounds (Lb)		Kilograms (Kg)
Final Compartment	**ULD ID- if available (Prefix/Serial #/Owner Code)**			**Weight**	**Remarks**
Cross checked w/ Load Plan by (print name of Loading Supervisor)			**Cross checked (Loading Supervisor signature)**		**DG segregated & secured (Loading Agent signature)**
Load Sheet print #:			**Load Plan print #:**		**All Belly nets fitted (Loading Agent signature)**

*Optional fields to be used when instructed by local guidelines for completing the Load Verification form. | DHL | Global Airside | Version 2 | 04.2024

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4.5.6.5.2 Flight Crew Load Verification Cross-Check for American Operators

Note: This process is mandatory for all flights operated by Americas Region aircraft.

In order to allow sufficient time for the Flight Crew to verify that the aircraft is loaded according to prescribed safety parameters the Load Sheet shall be presented to the Flight Crew at STD -10 min.

GOALS shall be used to conduct the Cross-Check procedure with the Flight Crew. Where a printed Load Plan has been used to load the aircraft, the completed Load Verification Log shall be used to conduct the Cross-Check procedure with the Flight Crew. The Loading Supervisor shall nominate a team member to take the LV Log to the flight deck to commence the Cross-Check procedure. This Cross-Check procedure shall be completed as follows:

1. The Flight Crew announces the start of the Cross-Check
2. The Flight Crew (or nominated Loading Team member, if not initiated by the Flight Crew) states the flight number, aircraft registration, flight destination and date.
3. The nominated Loading Team member (i.e., Loading Agent), reading out loud from GOALS or the LV Log, will verify the flight number, aircraft registration, flight destination and date announced by the Flight Crew.
4. The Loading Agent will read out for the Main Deck the final Loading Position, and the weight of the ULD, beginning at the nose of the aircraft.
5. The Loading Agent will read out for the Lower Deck the final Loading Position, and the weight of the ULD, beginning at the nose of the aircraft.
6. The Loading Agent will read out for the Loose Load the final Loading Compartment, and the weight of the cargo in the bulk compartment, beginning with the forward compartment.
7. The Flight Crew will announce “Cross-Check complete” if all information stated from the LV Log is consistent with the Load Sheet.
8. The Flight Crew must sign both copies of the Load Sheet and return one copy to the Loading Agent.
9. The nominated Loading Team member will state the Cabin report “all cargo secured, 9G barrier secured”.

If all information stated from the GOALS or the LV Log is not consistent with the Load Sheet, then the Flight Crew will present the inconsistent weight(s) to the Loading Agent. The weight issue(s) must be resolved, and the Cross-Check procedure repeated, before the Cross-Check is complete.

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4.5.6.6 Loading of Paperwork Accompanying Cargo (PPW)

The following procedure has been designed to prevent loading and recovery problems associated with accompanying documentation with aircraft loads.

PPW shall always be loaded last on departure and offloaded first on arrival.

PPW should be loaded in the following locations, dependent on the transport type:

Transport Type	PPW Loading Location
A300	Behind the 9G net[1]
A330	Behind 9G bulkhead
B747	Crew Entry Door
B757	Behind the Cargo Barrier[2]
B767, B777	Compartment 5 – Bulk For DHX flights only: Flight Deck Area
Other aircraft with Lower Deck Compartments (E.g. B737)	Front Lower Deck Belly
Aircraft without Lower Deck Compartments (E.g. ATR72)	Behind Cockpit
Road Vehicles	In cab, with driver

[1] If a smoke curtain is in use, place between the 9G-net and the smoke curtain

[2] If the aircraft has a solid bulkhead, place in cockpit and report exact location in the SI Box of the LDM

If the PPW exceptionally cannot be loaded as per the above table, **the exact location shall be reported in the SI box of the LDM.**

If there is no PPW loaded on board, **"no PPW" shall be reported in the SI box of the LDM.** An explanation for why there is no PPW should then be sent in a separate message.

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4.5.7 Securing of Load

4.5.7.1 General Rules

When transporting a load in an aircraft, it shall be secured such that it shall not:

a. Move during the flight, which could dangerously affect the weight and balance of the aircraft.
b. Cause damage to the aircraft structure or other important parts of the aircraft.
c. Cause damage to another load or become damaged itself.
d. Cause injury to passengers and crew in case of an emergency landing.
e. Cause injury to ground handling staff during loading and unloading.

4.5.7.2 Bulk Compartments

a. The load in bulk compartments is generally secured by door nets and sector divider nets. Ensure the following items are always secured:
    1. Barrels or drums filled with liquids
    2. Cages or boxes with AVIH
    3. HEA pieces weighing 150 kg (330 lb.) or more
    4. Coffins with HUM

    

    Do not load baggage or other shipments on top of the coffin.

    5. Dangerous goods (see **4.5.7.7 - Securing of Dangerous Goods**)
    6. Powered mobility aids
    7. Loads that need spreading
    8. Fragile loads

b. The following loads shall not move vertically or horizontally during flight. If the available volume of the compartment or net section is not volumetrically filled (three quarters of the height) with load, additional securing is necessary for:
    1. Loads that are sensitive against shocks or tilting.
    2. Wet cargo.
    3. High-density packages.
    4. Pipes, tubes, bars, beams, planks, poles or other objects of a penetrating nature.

c. Long pieces which do not fit into one net section and prevent the divider net from being closed correctly shall not be loaded in the bulk.

4.5.7.2.1 Bulk compartment Restraints

1. **Lower Cargo Compartment Lining Panels and Floor Panels**

   May be damaged or missing provided procedures are established and used to ensure the associated lower cargo compartment(s) remain empty

2. **Cargo Restraint Systems/Devices (including Main Deck 9G Barrier Net)**

   May be inoperative, or missing, provided acceptable cargo loading limits from an approved source, i.e. an approved Cargo Loading Manual, Cargo Handling Manual or Mass and Balance Document are observed.

   May be inoperative or missing provided associated cargo compartment remains empty.

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4.5.7.3 Securing of ULDs

a. ULDs should be secured by a ULD restraint system on the compartment floor. Refer to the Aircraft Technical Specifications chapters for relevant information on applicable ULD configurations, loading and restraint systems for each aircraft type. Observe the handling instructions of the operator in the case of missing or unserviceable restraints.
b. All restraints in a hold shall be raised if there is any ULD in the hold.
c. ULD restraints do not have to be raised in cargo holds that are completely empty. unless otherwise specified in the Aircraft Technical Specifications chapter.
d. In special cases, pallets can be tied down as a floating pallet with straps to tie-down points on the aircraft structure, as per operating airline procedures.
e. Forward restraint of the load to 9G is required in the cabin/main-deck if there is no 9G crash net or stressed bulkhead installed between the load in the cabin/main-deck and the passengers and/or crew.

Moveable locks may only be moved by suitably trained staff. Fixed locks which require specialist tools to operate may only be moved by qualified aircraft mechanics/engineers and an entry must be made in the aircraft technical log and an SI entry must be made on the LDM.

4.5.7.3.1 Securing of ULDs – Lower-deck Holds

1. **Overview**

Stack loading is a continuous loading process designed to both prolong Power Drive Unit (PDU) wear and to reduce staff access to the lower holds. The principle being: as each ULD enters the aircraft, it is moved one place FWD or AFT before being immediately followed by the next ULD, in this situation the FWD and AFT restraints/locks between ULDs located next to each other do not need to be raised.

Stack loading is permitted for ULDs of size code K, P and Q only (e.g. ULDs A**K**E, R**K**N, D**P**N and D**Q**F), intermixing of these ULD types may be permitted, depending on aircraft type and operator.

FWD and AFT restraints/locks (e.g. Partial Load Stops) must be raised at the end of each zone/stack of ULDs. FWD and AFT restraints/locks must also be raised in any void positions.

2. **Limitations**

All restraints must be utilised when loading ULD codes A, L, & M (e.g. ULDs A**A**K, A**A**J, P**A**G, A**L**P, A**M**P and P**M**C)

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4.5.7.4 Tie-Down Loads

HEA pieces weighing 150 Kg (330 Lb) or more, when loaded in a ULD, must be individually tied down except when the unit is at least 75% volumetrically full.

Definition of forces

Tie down the loads on board the aircraft properly to withstand the following types of forces during takeoff, flight and landing.

Force	Definition
Forward	Horizontal forces effective during landing and steep angles of descent
Backward	Horizontal forces effective during takeoff and steep angles of climb
Sideward	Horizontal forces effective during rough landing, turbulence and close turns
Upward	Vertical forces effective during landing and heavy turbulence in flight

Depending on the flight situation, the forces described above can be stronger than normal gravity force of 1 g. Secure all loads against the different forces according to the gravity factor (g-factor). See **/reader/#/1678661/h/6.12.5**

In general, the pallet build-up is done with a net that restrains the load against all forces.

Tie-down of load with straps or ropes

If the primary restraint of the load is done by straps, tie-down must be carried out according **/reader/#/1678661/h/6.12.5.2**.

The usage of tie-down material with different capacities is not allowed.

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4.5.7.5 Use of Tie-Down Material for Securing of Loads Inside Bulk Compartments

Make sure the tie-down material is in serviceable condition.

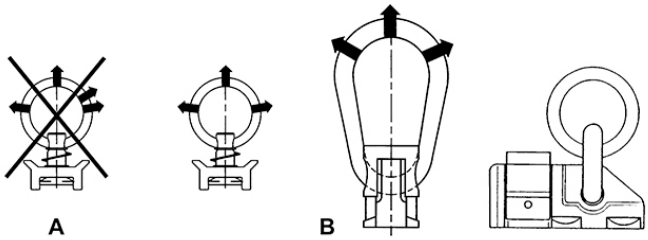
a. Tie- Down Ropes

1. Fix tie-down ropes to the aircraft floor tracks or tie-down fittings.
2. Make sure the overlapping ends of the tie-down ropes are long enough and will not loosen in the case of sudden stress.
3. Fix the tie-down ropes to the tie-down rings in a way that they may be easily loosened for unloading.
4. Do not fix tie-down ropes to other parts of the aircraft.
5. Do not use the same attachment points for lashing that are used to secure the net sector divider nets.



b. Tie- Down Fittings

A single tie-down fitting may receive up to three straps/ropes in three different restraint directions (one up and two opposite horizontal directions). Forces generated by the load can never act in more than one direction at the same time; thus, the fitting will never be pulled by more than one strap/rope at the same time. Therefore, never attach more than three straps/ropes to the same fitting and never more than one strap/rope in the same direction.



Alpha-Numeric	Description
A	Forbidden
B	Allowed

Fix tie-down rings to the aircraft floor only at tie-down points or to tie-down tracks.

Distribute the attachment points of the tie-down rings evenly (nearly equal distances) over the length of the piece.

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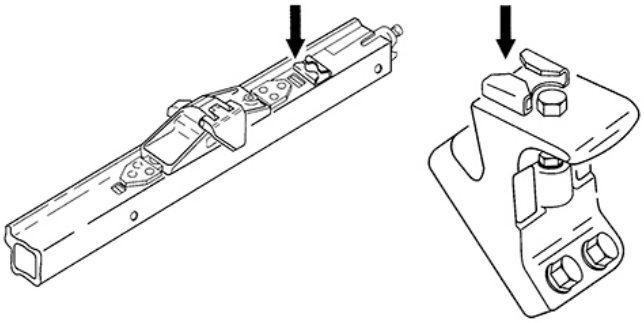
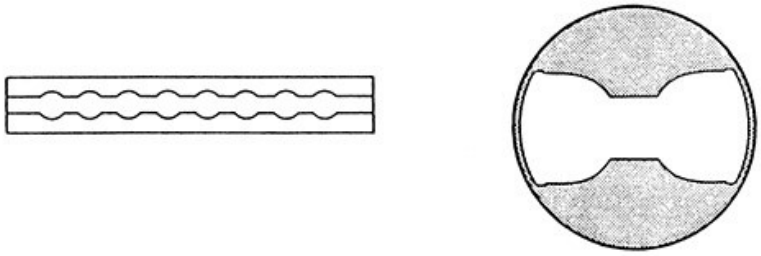
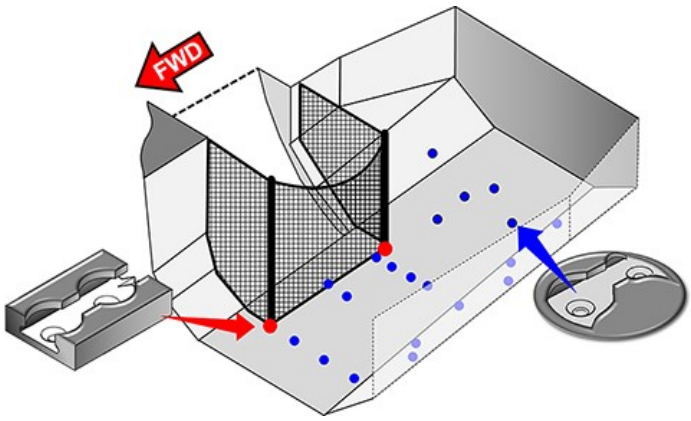
Example of tie-down attachment points on outboard side lock and side guide:



Example of tie-down attachment points on track and anchor plate:



Example of tie-down attachment points in the bulk compartment:



Tie-down on any part of the aircraft structure, other than those described above, even if equipped with rings or tie-down points, is forbidden.

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c. Tie-Down Straps

Use only certified ETSO/TSO C172 tie-down straps.

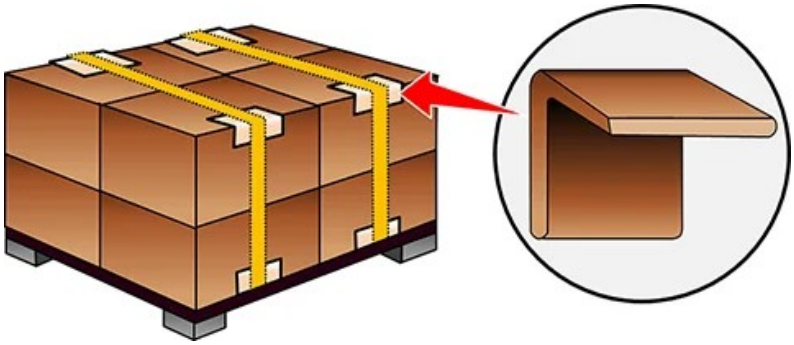
Fix tie-down straps to the aircraft with their fixed tie-down rings only at dedicated tie-down points or tie-down tracks.

Example of Tie-Down Straps:



d. Tightening

1. Tighten the lashing strongly, but not so strongly that the load or tie-down material is damaged.
2. Make sure all tie-down ropes or straps used for lashing the same piece have the same tension.
3. To protect fragile or sensitive cargo or dangerous goods, use cloth, cardboard or similar material for edge protection.



d. Sharp Edges

To avoid cutting or grinding of tie-down ropes or straps, smoothen sharp edges with a piece of soft material (e.g., cloth, cardboard, plank or similar).

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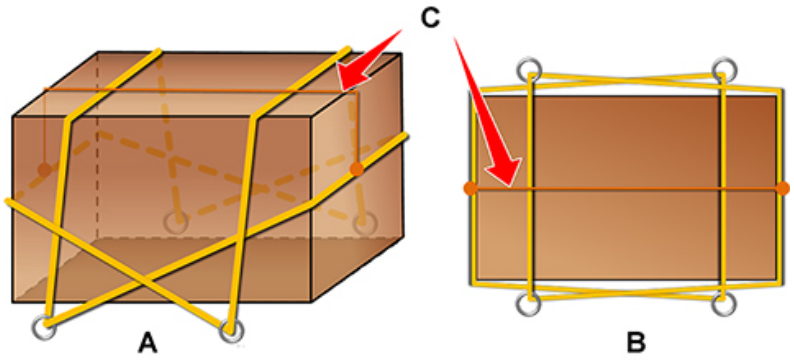
4.5.7.6 Standard Lashing for Securing of Loads Inside Bulk Compartments

For standard lashing use:

a. Four tie-down rings
b. Four tie-down ropes/straps and one safety rope
    1. Two against upward forces
    2. One against forward forces
    3. One against backward forces
    4. One safety rope

    The safety rope prevents the tie-down ropes/straps used against forward and backward forces from sliding down.



Alpha-Numeric	Description
A	3-Dimensional View
B	Top View
C	Safety Rope

Sideward forces

Sideward forces are normally covered by the standard lashing for upward, forward and aft forces. The rope/straps shall be lashed close to the pieces.

Exception

If a piece is more than twice as high as it is wide:

1. Tie down against sideward forces additionally to the standard lashing
2. Place this additional lashing between half and two-thirds of the height
3. Secure this lashing with two safety ropes to prevent the additional lashing from sliding down

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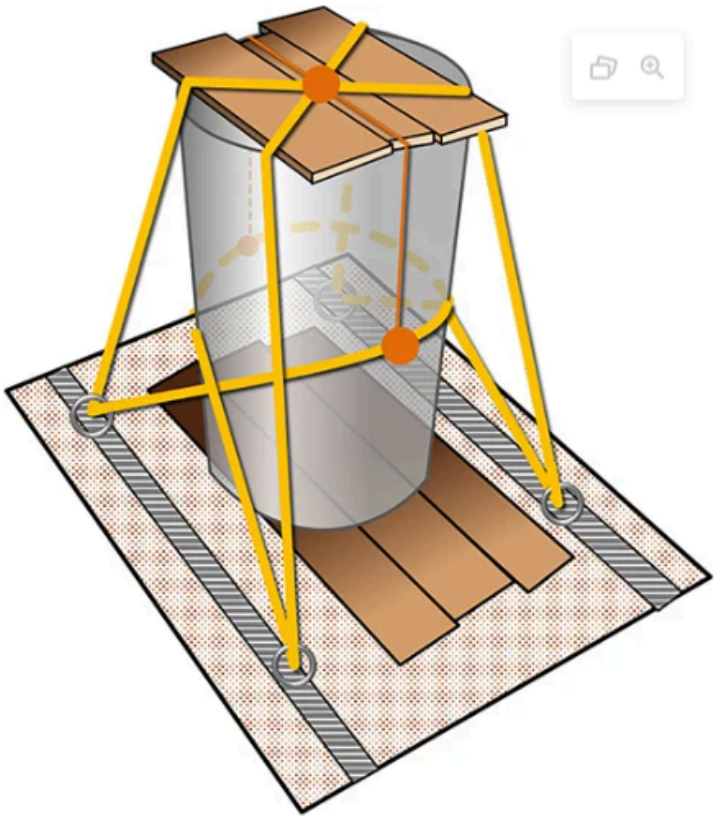
Barrels

Barrels are difficult to lash because of their round shape and mostly sharp rims.

Use supporting planks for a safe lashing.



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4.5.7.7 Securing of Dangerous Goods Inside Bulk Compartments

a. Handle dangerous goods with utmost care to prevent any damage to persons or goods.
b. Strictly observe all special handling instructions, labels or imprints (e.g., THIS WAY UP) or arrows showing the proper orientation of the package).
c. In a bulk compartment, securing by tie-down is not necessary if the package cannot move horizontally or vertically. The net section must be volumetrically full (three-quarters of the height), and the entire floor area must be covered.

4.5.7.8 Crushable, Rigid and Piercing Cargo

During an emergency landing, certain cargo loads which have become unrestrained have the potential to damage the barrier net or bulkhead and form a hazard to persons (crew, cargo attendants, passengers) located in front.

This subchapter explains how these kinds of cargo loads (known as “Rigid”, “Non-Crushable” or “Piercing” cargo) can be identified. Once cargo of this nature has been identified, there are loading limitations, which:

- Prohibit the loading of this type of cargo on specific aircraft positions
- Require the loading of specific aircraft positions with Crushable Cargo Loaded ULDs suitable for protecting the barrier wall against unrestrained rigid cargo.

For clarification, there are only 2 types of cargo: Crushable Cargo or Rigid/Non-Crushable/Piercing Cargo. The following sub-sections will explain how to identify these types of cargo.

Carrier-specific variations on these loading limitations are identified in the relevant Aircraft Technical Specifications chapters.

4.5.7.8.1 Identification of Rigid (Non-Crushable) and Piercing Cargo

Rigid (Non-Crushable) cargo is any large load item which, by its nature, will not break apart, crush or compress to absorb impact energy in the event of an emergency landing (9G Force).

Rigid (Non-Crushable) Cargo is defined as follows:

A large and heavy single piece of cargo which may have the following characteristics: high density, typically over 320 kg/m³ (20 lb/cu.ft).

Piercing Cargo is defined as follows:

Any cargo items of a “piercing” nature, which, if they become unrestrained, are capable of becoming a fast moving projectile endangering the crew located at the front of the aircraft.

Rigid cargo contained within a shipment may not always be immediately visible. When handling cargo, particular attention should be paid to large and heavy crated items. If the size or shape of the shipment makes it possible that they contain a rigid or piercing item, investigation is necessary to determine the characteristics of contents.

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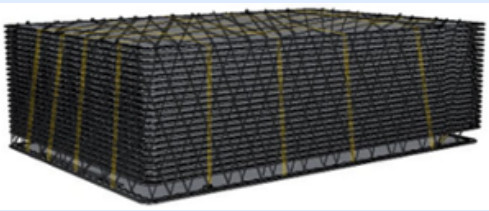
Examples of single pieces of Rigid Cargo	Illustration
Aircraft and other engines.	
Heavy vehicles such as cars, SUVs, trucks or tractors.	
Industrial equipment and machinery.	
Stacked aircraft pallets (but not wooden pallets).	
Piercing Cargo such as Rods/Poles, Pipes, Beams, etc.	
Any other items of a similar nature.	

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4.5.7.8.2 Identification of Crushable Cargo

"Crushable" (also known as "Compressible", "Frangible", or "Non-Rigid") Cargo is defined as cargo that is deformable and will soften an impact from a rigid item. Within the DHL network, revenue COY material is classified as Crushable Cargo. Warehouse material like empty LMF or red bags, or plastic, is not considered Crushable Cargo suitable for protecting the aircraft barrier wall against Rigid Cargo.

4.5.7.8.3 Preparation of Rigid (non-crushable) and piercing Cargo for transport

Once a piece of cargo has been identified as "Rigid (Non-Crushable)" or "Piercing", certain precautions shall be taken to ensure that it cannot form any danger to the safety of a flight or its crew.

A piece of Rigid Cargo may be transported on a pallet or in a container. A ULD shall be classified as a "Rigid Cargo ULD" if it contains any pieces of Rigid (Non-Crushable) cargo. In case a ULD contains rigid cargo, it must be flagged as "RGD".

An example of a Rigid ULD is below:



In this example, the NCY piece contains solid machine components which renders the ULD as Rigid (RGD). Common examples of single piece RGD ULDs are aircraft engines, vehicles and industrial equipment loaded onto pallets.

Piercing loads should preferably be loaded crosswise of the flight direction of the aircraft. If this is not possible, piercing loads shall be secured to 9G forward and aft of flight direction. A ULD containing piercing cargo shall also be flagged as "RGD" unless the cargo is positioned in such a way that the piercing ends are not in the direction of flight.

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4.5.7.8.4 Preparation of Crushable Cargo loaded ULDs suitable for protecting the barrier wall against unrestrained Rigid Cargo

If a “Rigid Cargo ULD” has been identified, a sufficient number of Crushable Cargo loaded ULDs suitable for protecting the barrier wall against unrestrained Rigid Cargo must be available to be loaded forward of the first Rigid Cargo ULD(s) on board the aircraft.

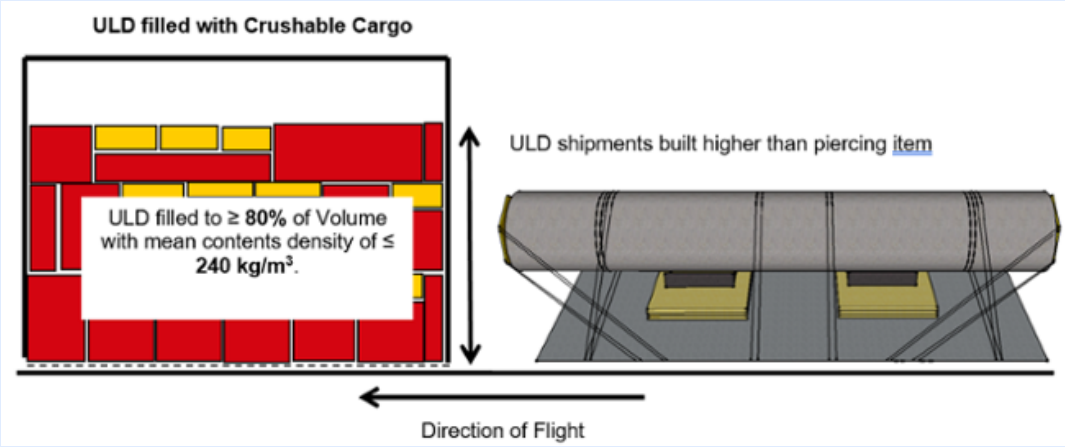
The function of this type of Crushable Cargo Loaded ULD is to form a buffer between an aircraft’s barrier net or bulkhead and any Rigid Cargo loaded on the aircraft. If, in case of an emergency, Rigid Cargo on board an aircraft becomes unrestrained and moves forward, the Crushable Cargo ULDs will absorb the impact of the Rigid Cargo.

In the illustration below, Rigid Cargo has been identified in two ULDs, marked in red. The two ULDs marked in blue are Crushable Cargo loaded ULDs suitable for protecting the barrier wall against unrestrained Rigid Cargo that have been loaded forward of the Rigid Cargo ULDs. The remaining grey ULDs are any other Crushable Cargo loaded ULDs or empty ULDs.



In order to build a Crushable Cargo Loaded ULD suitable for protecting the barrier wall against unrestrained Rigid Cargo, it must meet all of the following conditions:

- The ULD shall only contain Crushable Cargo. See **4.5.7.8.2 - Identification of Crushable Cargo** for a definition of Crushable Cargo.
- The mean contents density of the ULD’s filled volume must not exceed 240 kg/m^3 (15 lb/ft^3). See examples in points 4 and 5 for calculating filled volume and contents density.
- The ULD must be filled up to at least 80% of its volume capacity.
- The shipments build of the ULD must be at least as high as the height of the Rigid Cargo. A build height of 2.4m is acceptable if the Rigid Cargo is higher than 2.4m and non-piercing.



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If a Crushable Cargo loaded ULD does not meet the conditions explained above, it cannot be used as a buffer against Rigid Cargo.

Crushable Cargo loaded ULDs in transit may be used to as a buffer against Rigid Cargo if they are known to meet all of the conditions explained above.

Refer to the individual Aircraft Technical Specification chapters in DHL AGOM for specific information regarding the requirements for Crushable Cargo loaded ULDs suitable to be used as a buffer against Rigid Cargo.

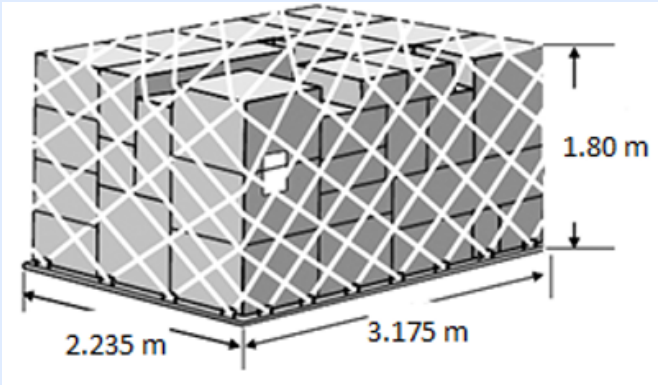
4.5.7.8.5 Calculating 'Filled Volume' for pallets

Pallets built 100% to specific contours shall use the volume associated with the contour being used.

Example: Pallet built to AAC contour shall use the average volume of an AAC: 11.3m³

Pallets not built to 100% contour shall have their 'Filled Volume' calculated based on the actual dimensions of the pallet build.

Example:



'Filled Volume' = 2.235 x 3.175 x 1.8 = 12.77 m³

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4.5.7.8.6 **Practical Examples of Determining whether a ULD is suitable for protecting the barrier wall against unrestrained Rigid Cargo:**

Rigid Cargo ULD

An **AAC** ULD (**Volume 11.3 m^3**) is filled to **85%** of its total volume. Amongst the contents of the ULD is a **large crate filled with heavy metal industrial equipment**.

The 'Filled Volume' is 85% x 11.3 m^3 = **9.6 m^3**

Assuming the total weight of the shipments loaded inside is **2200 kg**

This results in a mean contents density over the filled volume of 2200 kg / 9.6 m^3 = **229.2 kg/m^3**

Even though 229.2 kg/m^3 is less than 240 kg/m^3, this ULD contains a shipment identified as Rigid Cargo. The ULD would therefore be considered as **Rigid** and must be **flagged as RGD.**

Crushable Cargo loaded ULD Example 1:

An **AMX** ULD (**Volume 19.6 m^3**) is filled to **90%** of its total volume and is loaded with Crushable Cargo only. A Rigid Cargo item has been loaded on board the aircraft which has half the height of an AMX ULD.

The 'Filled Volume' is 90% x 19.6 m^3 = **17.64 m^3**

Assuming the total weight of the shipments loaded inside is **4200kg**

This results in a mean contents density over the filled volume of 4200 kg / 17.64 m^3 = **238.1 kg/m^3**

The ULD only contains Crushable Cargo, the ULD's contents density is less than 240 kg/m^3, the ULD is filled to more than 80% of its volume, and the cargo build inside the ULD is higher than the Rigid Cargo which was identified on board the aircraft.

Therefore this Crushable Cargo loaded ULD would be **considered suitable for protecting the barrier wall against the Rigid Cargo**.

Crushable Cargo loaded ULD Example 2:

An **AMX** ULD (**Volume 19.6 m^3**) is filled to **75%** of its total volume and is loaded with Crushable Cargo only. A Rigid Cargo item has been loaded on board the aircraft which has half the height of an AMX ULD.

The 'Filled Volume' is 75% x 19.6 m^3 = **14.7 m^3**

Assuming the total weight of the shipments loaded inside is **3400 kg**

This results in a mean contents density over the filled volume of 3400 kg / 14.7 m^3 = **231.3 kg/m^3**

Even though the ULD only contains Crushable Cargo, the ULD's mean contents density is less than 240 kg/m^3 and the cargo build inside the ULD is higher than the Rigid Cargo which was identified on board the aircraft, the filled volume of the ULD is less than 80%.

Therefore this ULD would **not be considered suitable for protecting the barrier wall against the Rigid Cargo**.

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4.5.8 Load Spreading

When the weight of item(s) to be loaded exceeds the maximum floor load per square meter or the maximum floor load per running meter of a compartment, the weight must be spread to prevent damage to the compartment floor.

The weight should be spread by making use of wooden boards or beams, in which case:

1. The surface to support the weight will be enlarged, or
2. The length will be enlarged

See **6.12.6 - Area Load Limitations** for Load Spreading requirements.

4.5.9 Aircraft Unit Load Devices

4.5.9.1 General

ULDs can be divided into two groups:

a. Aircraft containers
b. Aircraft pallets and pallet-net combinations

ULDs can be directly restrained onto the aircraft structure by the CLS. Each ULD shall meet minimum technical specifications to ensure safe restraint of the load. See **6.23.2 - Definition of Unit Load Device (ULD)**

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4.5.9.2 Identification/Labeling of Unit Load Devices

ULDs shall be marked in accordance with the standard IATA ULD ID Code format. See **6.23.3 - ULD Identifier**.

All ULDs shall be identified with ULD tags when loaded.

The preprinted letters (in boxes) indicate the specific application of the ULD tag.

a. Each ULD tag shall be fully completed.
b. One ULD tag shall be placed in the tag holder of a container.
c. A cross-check shall be performed during the loading of the ULDs. The following identification numbers must always be checked to ensure they correspond with each other:
    1. ULD ID Code shown on the Loading Instructions
    2. ULD ID Code shown on the ULD identification tag
    3. ULD ID Code marked on the ULD

d. The ULD tags shall be checked for conformity, including a check of the Tare Weight. If a discrepancy between the ULD tag and ULD weight or contents is identified, the ULD shall be returned to the Warehouse for corrective actions.

    As an exception, only the following discrepancies may be resolved at the aircraft, if the correct information is verified beyond any doubt:

    - Tare Weight discrepancies between the ULD tag of an Empty ULD (ELD) and the ELD Tare Weight placard if the correct weight has been communicated or verified by Load Control.
    - Weight discrepancies between the ULD tag and the ULD if the correct weight has been verified by Load Control or scale tickets.
    - Discrepancies in the ULD flagging which can be manually corrected on the ULD tag.
    - Discrepancies in the ULD number which can be manually corrected on the ULD tag.

    Any discrepancies and corrective actions shall be communicated to Load Control by the Airside Supervisor to ensure that any documentation and messages being issued are correct.

4.5.9.3 Checking ULD Conditions on the Ramp

a. Visually Detectable Damage Check
    1. Visual checks for any detectable damage to ULD components should be performed during ramp operations to continuously monitor and verify the serviceability of ULDs to ensure only serviceable ULDs are loaded on board aircraft.

        Note: Unserviceable ULDs may be loaded onto an aircraft only when expressly allowed by the person responsible for loading supervision. The ULD shall be empty, with limited load and/or other restrictions (e.g., additional tie-down) in accordance with the requirements for handling unserviceable ULDs.

Special attention must be given to out of gauge containers, especially on B737 and B757 aircraft. ULDs shall not have any protrusions or overhangs that will damage the aircraft cargo door opening or the interior of the aircraft.

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2. Unserviceable ULDs shall be identified and removed from service immediately. Failure to identify and remove unserviceable ULDs from service could:
    i. Cause injury to staff
    ii. Damage the aircraft structure
    iii. Impact on-time performance
    iv. Damage ULD contents (baggage, cargo or mail)
    v. Affect flight safety
3. If the visually detectable damage to a ULD component is identified during the visual check, refer to the ULD Serviceability Criteria checklist to determine whether that ULD's component is within the allowable damage limit and follow the instructions below:
    i. If damage to a ULD component is within the allowable damage limit, the ULD is still serviceable.
    ii. If damage to a ULD component exceeds the allowable damage limit, the ULD is deemed to be unserviceable.
4. The following list includes, but is not limited to, some typical stages during ramp operations when a visually detectable damage check on ULDs should be performed:
    i. Prior to dispatch to an aircraft
    ii. Prior to loading on board an aircraft
    iii. When unloading from an aircraft
    iv. Whenever a loaded ULD is interlined, interchanged, or otherwise transferred between parties prior to acceptance, including ULD handover between cargo warehouse staff and ramp staff

b. In addition to the visually detectable damage check, the following ULD conditions should also be checked during ramp operations:
    1. Check if the container curtain door(s) and pallet nets are closed and latched properly.
    2. Check for each of the following defects:
        i. Accumulations of snow, water, ice
        ii. Evidence of spills or leaks from load
        iii. Evidence of damage to load
        iv. Evidence of tampering (cuts, tears of plastic foil, etc.) with load
    3. At the ULD loader and in the aircraft:
        i. Identify the presence of any protective plastic sheet put over the top of a pallet net or container that is not approved by airline operating procedures.
        ii. Verify ULD contour and overhang size correspond to the contour and overhang size in the Loading Instructions.
    4. Check if nets and straps are properly tightened without any slack or excess.

c. Unserviceable ULDs:
    1. An Unserviceable ULD tag must be completed and attached to the unserviceable ULD.
    2. DO NOT load unserviceable ULDs on board any aircraft.
    3. Inform the operator/owner and return the unserviceable ULD to the cargo warehouse.

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d. For other defects:

1. Close and secure the container curtain door(s) and pallet net by appropriately trained and qualified staff in ULD build-up.
2. Remove accumulations of snow, water, ice.
3. Defects such as spill/leak from load, damage to load, or tampering should only be fixed/resolved by appropriately trained and qualified staff. In cases where the defect cannot be fixed/resolved on the ramp, the person responsible at the cargo warehouse should be contacted.



1. Do not touch the spill/leak from dangerous goods and immediately inform the person responsible for safety before moving the cargo.
2. In cases where tampering evidence is identified, the person responsible for security should also be informed.

4. Remove and dispose of any protective plastic sheet put over the top of a pallet net or container before loading the ULD into the aircraft.
5. Improper ULD contour or overhang/indent size should only be fixed/resolved by the appropriately trained and qualified staff in the ULD build-up.
6. For net and strap tension concerns due to the existence of slack or excess, any appropriately trained and qualified staff member in the ULD build-up can make appropriate adjustments to nets and straps to secure the load at any point along the ULD operational procedures.
7. For all other defects identified, contact appropriately trained and qualified staff to assist with proper resolution in accordance with operating airline procedures.

e. All ULDs, including EIC and Pallet Stacks, shall be checked for compliance with build-up requirements as defined in DHLAGOM **6.12 - Freight (ULD) Build-up** and compliance with all DGR requirements as defined in **7. Dangerous Goods and Exceptions Handling**.

4.5.10 Transport of Cargo and Mail in Passenger Cabin

Passenger aircraft are not certified to carry cargo on passenger seats or ULDs (pallets or containers) in the passenger cabin secured to the seat tracks.

In case a passenger aircraft flies on behalf of DHL, cargo shall only be carried in the lower deck holds.

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4.6 Aircraft Departure

4.6.1 Introduction

A departure is normally conducted with a dialogue between flight crew and the ground staff member in charge of the departure operation via an interphone. This procedure ensures the highest level of safety during departures based on a precise exchange of information. The ground staff member in charge of the departure operation shall maintain continuous contact with the flight crew and is responsible for the ground maneuver.

The scope of the following departure procedures is limited to conventional towbar and towbarless (TWL) pushback operations.

Pushback is the rearward moving of an aircraft from a parking position to a position on the taxi lane centre line. This may then be followed by a short forward movement to align the aircraft.

Only trained and qualified staff shall be involved in pushback operations. They shall have sufficient English skills to communicate effectively with the flight crew.

Note: The term headset applies whether a wired or wireless interphone system is used.

Other staff are also involved in the departure process. The number of other staff and their functions/responsibilities can change depending on:

a. Operating airline procedures
b. Aircraft type
c. GSE used for the maneuver
d. Airport infrastructure
e. Stand configuration

4.6.2 - Ground Staff Member Responsibilities describes the responsibilities of the main functions involved in the pushback maneuver.

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4.6.2 Ground Staff Member Responsibilities

4.6.2.1 Ground Staff Member Responsible for Departure

The responsible ground staff member is defined as the person performing the communications with the flight crew. A responsible ground staff member shall be in charge of every aircraft pushback. This function can be performed by different staff in different roles and positions.

The ground staff member responsible for the departure shall:

a. Be in charge of the entire pushback, once clearance to begin pushback has been given by the flight crew.
b. Ensure the pushback tractor and towbar/TWL tractor is suitable for the specific aircraft type.
c. Conduct briefings with all persons involved in the aircraft movement to review and confirm how the aircraft will be maneuvered.
d. Have ultimate responsibility to review pushback procedures based on conditions observed and advise flight crew of any anticipated changes to pushback procedures.

4.6.2.2 Pushback Tractor Driver

The pushback tractor driver shall:

a. Ensure the pushback tractor and towbar/TWL tractor is suitable for the specific aircraft type.
b. Stand by for clearance-to-push communication from the flight crew or responsible ground staff member or brake operator in case of towing.

> **Note:** A single person pushback is not permitted.

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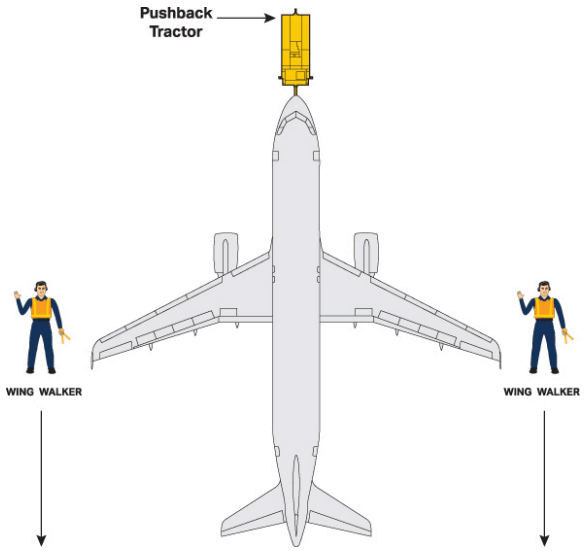
4.6.2.3 Wing Walker

The presence of wing walkers may be controlled or restricted by civil aviation authorities or local airport authorities.

When the aircraft is parked nose-in, and the view of the Head-set operative or the aircraft tug driver is restricted by aircraft parked adjacent, a wing-walker shall be positioned at the rear of the aircraft and at each wingtip if appropriate to ensure there are no vehicles or other aircraft to obstruct the push-back.

Where applicable, the wing walker or other assist staff shall:

a. Be under the direction of the responsible ground staff member at all times.
b. Use two marshalling wands, either day wands or illuminated wands for low-visibility operations.
c. Be positioned before and during movement of the aircraft as follows, where applicable and/or permitted:
    1. Approximately 1 m (3 ft.) outboard of the wingtip and with a clear view of wingtip clearance and any potential hazards
    2. In line with the rearmost main gear wheel
    3. Able to maintain visual contact with the person responsible for pushback/towing
    4. At a safe distance from the moving aircraft/pushback tractor during the entire pushback
    5. Maintain situational awareness to avoid personal injury hazards e.g., moving equipment and vehicles, aircraft, slip, trip and fall hazards such as chocks, cones, GSE, uneven ground, spillages, etc.
d. Ensure the aircraft movement path is clear of any obstructions (i.e., other aircraft, vehicles).
e. Provide “Clear to Move Aircraft” clearance signals at all times to the person responsible for pushback by using a distinct pendulum arm motion (see **/reader/#/1678658/h/3.4.6.1**).
f. Continue to monitor the aircraft path until the aircraft is stopped at the departure point.
g. If at any time during aircraft movement, the wing walkers are unsure or identify an imminent danger, signal the person responsible for pushback with the “STOP” signal (see **/reader/#/1678658/h/3.4.7.6**).
h. When the aircraft is stopped at the departure point, position themselves either at the 11 o'clock or 1 o'clock position in clear visibility of the flight crew on the terminal side at a safe distance away from the aircraft.
i. Give the “Hold Movement of Aircraft” signal to the flight crew when the visual “Brakes Engaged” signal has been received from the person responsible for pushback (see **/reader/#/1678658/h/3.4.6.3** and **/reader/#/1678658/h/3.4.9.1**).
j. Remain in position until the responsible ground staff member takes over the marshalling clearance of the aircraft.
k. Return to the terminal once marshalling duty has been transferred.



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4.6.3 Predeparture Activities

4.6.3.1 Predeparture Walkaround Check

The walkaround should start as soon as possible after all ground servicing activities have been completed. Walk around the entire aircraft at a normal walking pace. The check shall start as close as possible to departure time. If any part of the aircraft still has GSE engaged at the time of the check, or if GSE re-engages with the aircraft after the check, the applicable area(s) shall be reinspected.

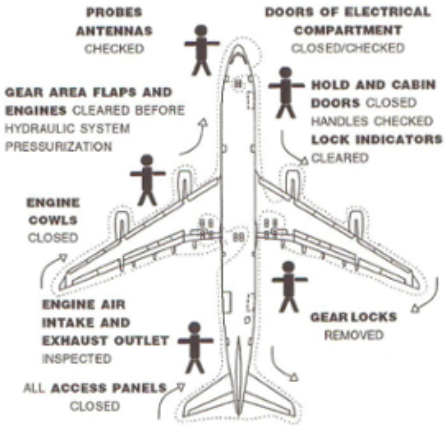
The predeparture walkaround check shall include the following:

a. The apron is clear of all FOD that may cause aircraft damage or pose a risk.
b. All GSE, including passenger stairs, are detached and moved outside the ERA or Circle of Safety.
c. The stand area is clear of obstructions.
d. GSE and vehicles are positioned clear of the aircraft path.
e. Adequate clearance exists between the aircraft and facilities or fixed obstacles along the aircraft movement path.
f. All aircraft servicing panels and/or hatches are closed and secured (Exception: External power and headset panels).
g. Cabin and cargo access doors are closed and:
    1. Handles are flush with the fuselage and, where applicable, all other visible indicators confirm that doors are correctly locked.
    2. There is no visible damage on the aircraft, particularly around cabin and cargo access doors.
h. Any observed abnormalities on the aircraft (e.g., obvious damage, fluid leakage, unremoved pitot covers) are immediately brought to the attention of the flight crew, maintenance staff and the person responsible for supervision.
i. Items such as propeller straps and tail stands are removed.
j. Landing gear safety pins are removed.
k. There are no obvious signs of unmarked dents or other skin panel damage.

Notes:

1. In the case of the aircraft returning to the stand, the predeparture walkaround check shall be repeated.
2. It is essential to have adequate lighting when doing the walkaround check. If the lighting is insufficient, use a flashlight.

If any of the above conditions or actions are not met, inform the person responsible for supervision, the maintenance department and the flight crew, as this may affect the safety of the intended flight.



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4.6.3.2 Predeparture Table

Prior to aircraft movement, the responsible ground staff member (headset operator) shall ascertain that the requirements in the following table are met/carried out.

TWT – Towbar Tractor

TWL – Towbarless Tractor

ACTION	APPLICABLE TO				
	PUSHBACK		TOWING		TAXI OUT
	TWT	TWL	TWT	TWL	
The required predeparture servicing checks are completed.	X	X	X	X	X
Fire protection devices are available and correctly positioned (as per local rules).	X	X	X	X	X
The tractor and towbar combination, if applicable, are suitable for the operation, considering the aircraft type and weight as well as weather and surface conditions.	X	X	X	X	
The nose gear steering bypass pin is installed correctly, or the nose gear steering torque links are disconnected, if applicable, or the nose gear steering mechanisms are set as required for pushback (as applicable to the aircraft type).	X	X	X	X	
Communication with flight crew/brake operator and responsible ground staff member is established via interphone system.	X	X	X	X	X
Aircraft main landing gear (MLG) chocks are installed, and nose gear chocks are removed, if applicable.	X	X	X	X	
Additional staff, such as wing walkers, are present, if applicable/required.	X	X	X	X	
If an air start unit (ASU) is required, check the equipment is correctly positioned and suitable for the operation.	X	X			
If an ASU engine start is undertaken, communicate to confirm ASU positioning and engine start sequence with the flight crew.	X	X			
All persons not involved in the aircraft departure operation are clear of the departing aircraft, outside the ERA, and remain clear of the aircraft and pushback equipment throughout the pushback maneuver.	X	X	X	X	X
The GSE is parked in designated locations outside the ERA, and the intended path of the aircraft remains clear of equipment and other obstacles throughout the pushback maneuver.	X	X	X	X	X
The ERA and the path/area that the aircraft will move toward is clear of FOD, and remains so throughout the pushback maneuver, ensuring safe aircraft movement.	X	X	X	X	X
The stand surface condition is sufficiently free of ice, snow, etc., to ensure safe aircraft movement.	X	X	X	X	X
The ramp area is free of objects/obstacles that may be impacted by the aircraft or may endanger others due to jet blast effects.	X	X	X	X	X
The air intake and blast areas of the aircraft engines are clear of persons and obstacles, such as GSE.	X	X			
All persons involved in the aircraft movement stay well clear of the danger areas around the tractor, landing gear and aircraft engines.	X	X	X	X	
Flight crew/brake operator confirm that the aircraft parking brake is set.	X	X	X	X	
Completion of the predeparture table is indicated to the flight crew.	X	X	X	X	

Note: Where a remote-controlled pushback tractor connected to the nose gear is used, TWL predeparture activities shall apply.



It is critical that the responsible ground staff member (headset operator) establishes verbal communication with the flight crew via the aircraft interphone system, as departures using marshalling hand signals without headset communication shall only be conducted in exceptional cases.

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4.6.3.3 Predeparture Communication and GPU disconnection

An aircraft departure shall always be conducted using interphone communications. If the interphone becomes/is unserviceable, use standard hand signals (refer to **3.4.7 - Marshalling Hand Signals for Aircraft** and for the departure).

a. Connect the Interphone and:
   1. Verify the communication system is functional
   2. Update flight crew on the progress of the ramp operation

b. Prior to departure, conduct a briefing with the flight crew and the ground staff member responsible for the departure, to:
   1. Review departure specifics (e.g., direction of movement, ASU requirement, final positioning, taxi out direction).
   2. Review standard hand signals to be used, including emergency signals.



Repeat all given instructions or acknowledge them in a manner clearly indicating that they have been understood and will be complied with.

c. Request permission to disconnect ground power, if applicable.
d. Disconnect GPU/FPU after approval is received from flight crew.
   1. Switch the GPU to idle prior to disconnection



Under no circumstances shall the GPU be disconnected whilst the cables are powered as death or serious injury could result.

   2. Disconnect and stow the cables

Note: The ground staff responsible for departure should be in continuous communication with flight crew by interphone.

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4.6.4 Connecting the Pushback Vehicle

4.6.4.1 General

a. Prior to connecting the tractor to the aircraft, as per Table 4.6.3.2, the tractor may be parked in front of the aircraft or outside of the ERA, but never behind the wings.
b. Ensure the nose gear steering bypass pin is correctly installed prior to towbar/TWL connection to the aircraft and/or ensure the nose gear steering mechanisms are set as required for pushback (as applicable to the aircraft type). The steering bypass pin shall be:
    1. Labeled with the specific aircraft type(s) for which it can be used.
    2. Identified with a “Remove Before Flight” streamer.
    3. Checked regularly for proper technical condition, or as per manufacturer instructions.
c. Ensure the steering hydraulic system is depressurized or the nose gear steering torque links are disconnected, as applicable for aircraft not fitted with a nose gear steering by-pass system. Coordination with the flight deck would be required to ensure a safe depressurization and repressurization of the aircraft hydraulic system.
d. The Pushback tractor (with Towbar/TWL) shall only be connected to the aircraft once all GSE is detached from the aircraft.
e. A guide person shall be used to assist in the final approach to the towbar/nose gear when a tractor and towbar is used for the pushback process. When a TWL tractor is used, a guide person shall be used when the vision of the tractor driver is/might be restricted.

Note: Main-gear pushback and Power Pushback Unit (PPU) are not conducted in the DHL network.

4.6.4.2 Connecting Pushback Tractor and Towbar

a. Where applicable, remove the chocks from the nose gear.

    Note: Nose gear wheel chocks may be removed without notification, provided the Main Landing Gear wheel chocks are still positioned.

b. Connect the towbar to the nose gear first.
c. Ensure the towbar connection is secured and a locking pin is in place.
d. Ensure the tractor and towbar are aligned with the centerline of the aircraft while connecting.
e. Raise the towbar so its head is at the same height as the tractor connection.
f. Approach the towbar slowly until the connection aligns with the pushback tractor.
g. Ensure the front wheels of the tractor remain straight and the tractor is in line with the centerline of the aircraft.
h. Secure the towbar connection to the pushback tractor.
i. Raise the towbar wheels by releasing pressure on the hydraulic pump.
j. Select the Park or Neutral gear (if no selection for Park) and set the parking brake of the pushback tractor.
k. To minimize the possibility of injury, Ground handling staff shall:
    1. Face the tractor when connecting the towbar to the tractor.
    2. Stand with both legs on the same side of the towbar during the connection/disconnection procedure (i.e. do not stand astride/over the towbar).

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4.6.4.3 Connecting Towbarless Tractor

a. Ensure the correct aircraft type is selected on the TWL control panel, where applicable and in accordance with TWL operating procedures.
b. Where applicable, remove the chocks from the nose gear.

Note: Nose gear wheel chocks may be removed without notification, provided the Main Landing Gear wheel chocks are still positioned.

c. On final approach to the aircraft, the tractor shall be properly aligned and correctly positioned.
d. Ensure the aircraft nose wheels are safely locked into the tractor cradle by the tractor locking mechanism.
e. Position the TWL tractor to standby for lifting.
f. Select the Park or Neutral gear (if no selection for park) and set the parking brake of the pushback tractor.
g. Ensure aircraft is not lifted while any GSE are connected to the aircraft.

4.6.4.4 Connecting Remote-Controlled Tractor to Nose Gear

a. Ensure the remote control unit's battery is sufficiently charged.
b. Ensure the tractor is sufficiently charged for the task/pushback maneuver.
c. Switch on the remote control unit and ensure it connects to the tractor.

Note: See **4.6.4.3 - Connecting Towbarless Tractor** for other points related to connecting TWL

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4.6.5 Wheel Chock Removal

Prior to removal of chocks the responsible ground staff member (headset operator) shall:

a. Via the interphone or hand signals, confirm the aircraft parking brake is set.
b. Check all GSE have been disconnected from the aircraft, except for the GPU and ASU when air start is required.
c. Check the passenger stairs have been retracted from the aircraft, if applicable.
d. Check that the pushback tractor and towbar are fully secured to the nose gear and the parking brake is set on the tractor.
e. For TWL tractor operation, check that equipment is fully secured to the NLG and the parking brake is set on the tractor.
f. Give clearance to ground staff member to remove chocks. After removal, chocks shall be placed in their designated location on the stand or in a defined storage affixed to ground equipment (i.e. passenger stairs).

Notes:

1. If a chock is stuck, the responsible ground staff member removes it by tapping it with a spare chock. If this does not work, the stuck chock can be removed by moving the aircraft after the aircraft brakes have been released, with precautions and in coordination with the responsible ground staff member for the departure.
2. Once high-wind or icy conditions have passed, any additional chocks that were added to the aircraft may be removed so that chock placement reverts to that for normal conditions.
3. If hand signals are used (i.e., the aircraft interphone system is inoperative), the person performing the hand signals shall:
    i. Display the “Set Brakes” hand signal (see **3.4.7.11 - Set Brakes**).
    ii. Receive confirmation from the flight crew when they display the “Set Brakes” hand signal in response.
    iii. Remove chocks (see **3.4.9.4 - Remove Wheel Chocks**).
4. In the Americas region, nose gear chocks shall remain in place until aircraft departure begins.

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4.6.6 Departure Communications

4.6.6.1 General

Departure communications procedures outlined in this section are a basic standard for both pushback and open ramp (taxi out) departures. Certain operators may have specific requirements in their departure communications that may vary. If available, refer to the operating airline's instructions; otherwise, this communication standard shall apply. The specific dialogue contained herein does not forbid the exchange of additional important information between flight crew and responsible ground staff member using non-standard phraseology (e.g., request for authorization to disconnect ground support units).

Notes:

1. If the pushback needs to be stopped, the following call shall be made: "Stop Pushback"
2. Where applicable, use "Pull Out" instead of "Pushback".
3. Only engage the TWL tractor and lift the aircraft once the passenger stairs have been removed from the aircraft and the flight crew has requested pushback.

See Americas Regional Variation **3.11 - Communication/Headset Procedures**.

4.6.6.2 Departure Communication Dialogue

The following dialogue is a sample communication to be used for a departure.

Note: In the case of an aircraft taxi-out, Pushback and Pushback Completed phases are not applicable.

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Dialogue between Responsible Ground Staff Member and Flight Crew		
Phase	Ground Staff	Flight Crew
Preparation	Inform the Flight Crew about the use of a Towbar or TWL (if applicable)	
	Call: CONFIRM PARKING BRAKE SET	
		Reply: PARKING BRAKE SET
		Call: CONFIRM STEERING BYPASS PIN INSERTED / NOSE WHEEL STEERING DEACTIVATED (if applicable)[1]
	Reply: STEERING BYPASS PIN INSTALLED / NOSE WHEEL STEERING DEACTIVATED (if applicable)[1]	
		Call: CONFIRM CLEAR TO PRESSURIZE? (if applicable)
	Reply: CLEAR TO PRESSURIZE (if applicable)	
After completion of the predeparture servicing checks	Call: PREDEPARTURE CHECKS COMPLETED	
Pushback	Call: ELEVATING AIRCRAFT[2]	
	Call: READY FOR PUSHBACK[1]	
		Reply: STANDBY
		Call: PUSHBACK APPROVED (mention AIRCRAFT NOSE DIRECTION, START-UP POINT, PULL FORWARD, ETC.)
	Call: CONFIRM PARKING BRAKE RELEASED	
		Reply: PARKING BRAKE RELEASED
	Call: COMMENCING PUSHBACK (mention AIRCRAFT NOSE DIRECTION, START-UP POINT, PULL FORWARD, ETC.)	
Engine start	Call: CLEAR TO START ENGINES	
		Reply: STARTING ENGINES (mention ENGINE START-UP SEQUENCE)
Pushback completed	Call: PUSHBACK COMPLETED, SET PARKING BRAKE	
		Reply: PARKING BRAKE SET
Disconnecting		Call: CLEAR TO DISCONNECT
	Reply: DISCONNECTING, HOLD POSITION AND WAIT FOR HAND SIGNAL ON YOUR LEFT/FRONT/RIGHT Display the steering bypass pin (if applicable to the aircraft type) to the Flight Crew	
		Reply: HOLDING POSITION AND STANDING BY FOR HAND SIGNAL ON THE LEFT/FRONT/RIGHT

[1] Applicable to departures with towbar and TWL

[2] If required, applicable to TWL

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4.6.6.3 Items to be Communicated between Responsible Ground Staff Member and Flight Crew

Phase	Task	Responsible Ground Staff Member Action
Departure Procedures	GPU Removal	When instructed by flight crew, remove GPU.
	Towbar/TWL tractor connection	a. Get confirmation that aircraft parking brake is set. b. Get confirmation that the nose wheel steering is depressurized or advise flight crew that the steering bypass pin is inserted, if applicable. c. Connect the towbar. d. Connect the TWL tractor.
	Chock removal	a. Get confirmation from flight crew that aircraft parking brake is set. b. Remove chocks.
	Predeparture check	Advise flight crew that the predeparture check has been completed or communicate any discrepancies.
Engine Start	Starting engines	When requested by the flight crew, advise when the engines may be started and the start sequence.
	ASU	When requested by the flight crew, signal to the ASU operator to supply the required pressure.
Pushback and engine start	Brakes	Get confirmation that the aircraft parking brake has been released.
	Movement of the aircraft (pushback/pull out)	Get permission from flight crew to commence pushback.
	Direction of push/nose	If applicable, ask in which direction the aircraft must be pushed or in which direction the nose should point after pushback.
	Engine start	When requested by the flight crew, advise when the engines may be started.
Pushback completed and engine start completed	Towbar/TWL tractor disconnect	a. Get confirmation that the aircraft parking brake is set. b. Disconnect. c. Remove the steering bypass pin, if applicable.
	Headset removal	a. Get permission from the flight crew to disconnect the headset. b. Advise the flight crew to hold position and wait for visual signal at left/front/right of the aircraft.
Departure	“All clear” signal	a. Verify steering bypass pin removal has been completed, if applicable. b. Give the “All Clear” signal when the path of the aircraft is clear of all obstacles. c. Get acknowledgement from the flight crew of the “All Clear” signal.

4.6.6.4 Departure Communication without Interphone

An aircraft departure shall always be conducted using interphone communications. Only if the interphone becomes unserviceable or under extreme circumstances where the interphone is not available, shall the responsible ground staff member and flight crew use conventional hand signals. Refer to **3.4.7 - Marshalling Hand Signals for Aircraft** and **3.4.8 - Technical/Servicing Hand Signals–Ground Staff to Flight Crew**.

4.6.6.5 Interphone Communication Failure

Aircraft pushback requires a communication interphone. If the interphone becomes unserviceable or communications is lost, the following procedure shall be followed:

a. In the case of a single person operation and if no other means of communication are available, stop the movement and immediately request assistance to continue the movement (depending on local situations and regulations).
b. In the case of a multiple person operation, communication with the flight crew will be established using hand signals (See **3.4.7 - Marshalling Hand Signals for Aircraft** and **3.4.8 - Technical/Servicing Hand Signals–Ground Staff to Flight Crew**). The tractor driver shall be able to receive the visual signals as relayed from the flight crew. Once hand signal communication has been established, the pushback can resume.
c. Notify air traffic control (ATC), if radio available, and continue the movement in cooperation with ATC, depending on local regulations.

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4.6.7 Pushback Manoeuvre

4.6.7.1 Anti-Collision Lights

During a standard departure, once all aircraft doors are closed, the flight crew requests pushback clearance from ATC. Once clearance is obtained, the flight crew will switch on the aircraft's anti-collision lights.



Anti-collision lights that are switched on are a visual indication to ground staff of imminent engine start-up or aircraft movement. Vehicle traffic shall stop until the aircraft has departed from the area.



If the anti-collision lights are switched on unexpectedly (other than in preparation for the departure or towing operation), ground staff shall move away and remain outside the ERA. The responsible ground staff member shall check with the flight crew before resuming ground handling activities.



In case of the lower anti-collision light failure, the flight crew shall inform the responsible for the departure operation to inform staff involved in the operations about the imminent engine startup or aircraft movement.

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4.6.7.2 Pushback Requirements

a. Prior to the aircraft movement, make sure the parking brake is released and the anti-collision lights are switched on, in accordance with local airport regulations.
b. Headset operator shall signal “Clear to Push” to the pushback tractor driver and wing walkers (if applicable) once advised by the flight crew that the aircraft brakes have been released and approval for pushback is given by the flight crew.

   Note: In case of single person pushback operation, the pushback operator performs headset functions.

c. Select the appropriate gear on the tractor and slowly begin movement. Start the pushback operation in a straight line.
d. Carry out the pushback maneuver at a pace no greater than 5 km/h or 3 mph (walking speed) and where required, apply the vehicle brakes gently.
e. During the maneuver, the pushback tractor driver shall ensure the taxiway (including other movement areas in the intended aircraft path) is free of other aircraft/equipment/obstacles. If an obstacle is identified, the pushback shall stop immediately until the obstacle is clear.
f. During pushback, ensure the steering turn limits are not exceeded and advise the flight crew if any are exceeded. Damage may occur to the nose gear. Refer to the operating airline’s instructions for the specific limits and how they are marked on the aircraft.

   When using a towbarless tractor on an aircraft, the “over steering” or “over torque” system of the tractor must be operational.

   

   The flight crew shall be notified immediately in the event any connection between the tractor and the aircraft is lost during aircraft movement.

g. At the end of the maneuver, the aircraft/pushback tractor set shall be correctly aligned with the taxiway centerline.
h. When the pushback maneuver is complete, headset operator will receive the “Vehicle Brakes On/Stop” signal (see **3.4.5.4 - Vehicle Brakes On/Stop**) from the tractor driver to confirm that the tractor parking brake is set. Prior to the disconnection of the tow bar or towbarless tractor from the aircraft nose gear, headset operator:
   1. Request flight crew to set the aircraft parking brake and hold the existing position until final clearance signal to taxi.
   2. When confirmation that the aircraft brakes have been set is received from the flight crew:
      i. Give the “Vehicle Brakes On/Stop” signal as per **3.4.5.4 - Vehicle Brakes On/Stop** to the tractor driver and wing walkers, if applicable. Tractor driver releases the tractor parking brake and puts the gear in neutral to release any pressure on the towbar.
      ii. Give authority to disconnect pushback equipment.

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4.6.7.3 Staff Safety During Pushback Manoeuvre

a. Tow Bar/TWL Tractor Operations

1. Throughout the pushback operation, all staff walking on the ramp (including the headset operator when the aircraft is moving) shall remain clear of:
    i. The area on the ground directly under any part of the aircraft (including, but not limited to, the fuselage, wings, stabilizer, engines, nose gear)
    ii. The aircraft's path
    iii. The tractor's path
    iv. Engine danger areas

2. The headset operator shall:
    i. Be in visual contact with the tractor driver throughout the pushback
    ii. Avoid walking backwards and maintain situational awareness to reduce the possibility of tripping
    iii. Use a headset cable long enough to operate safely and be allowed freedom of movement while not posing a trip or tangle hazard (not applicable when a wireless headset is used)
    iv. Ensure the headset cable remains clear of aircraft/pushback wheels.

    In the event the headset cable becomes entangled with the tractor, tow-bar or nose gear, the headset operator shall remove and abandon the headset immediately and move away from the aircraft.

3. If the responsible ground staff member is too close to the nose gear or pushback equipment, the tractor driver shall stop the pushback and review the required safety clearance conducted.

b. Remote-Controlled Pushback Operations

When pushback operations are undertaken using remote-controlled pushback equipment connected to either the NLG, the responsible ground staff member shall:

1. Stand forward of the aircraft.
2. Follow its movements and always be in sight of the flight crew.
3. Stay outside the engine's intake/suction area and wheel path of the aircraft during the entire pushback maneuver.
4. Maintain sufficient clearance between the equipment and themselves throughout the pushback maneuver, where the pushback equipment is connected to the NLG.
5. Be in continuous communication with the flight crew via the interphone system.

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4.6.7.4 Pushback and Pull Forward

When a pull forward maneuver is performed after a pushback maneuver, particular attention must be paid to the end of the pushback maneuver and during the whole pull forward maneuver. To prevent the aircraft from overtaking/pushing the pushback vehicle during the pull forward phase, the following precautions shall be applied:

a. The aircraft engines shall be at idle thrust during all of the pushback/pull forward maneuver.

   Note: If the requirement to pull forward is known in advance, consider not starting the engines until the pull forward maneuver is completed.

b. The pull forward maneuver shall be performed with the pushback vehicle in the lowest gear available.
c. Braking shall be performed smoothly and without jerks.
d. The flight crew shall be alerted immediately to stop the aircraft using gentle braking if aircraft control cannot be ensured/maintained from the pushback vehicle.

   Notes: The following factors increase the risk that the aircraft will overtake/push the pushback vehicle and shall be, therefore, taken into account:

   1. Aircraft type and number of engines started/running
   2. Slope of the parking stand and taxiway
   3. Use of a tractor and towbar to undertake the pushback/pull forward maneuver
   4. Adverse weather conditions



Care shall be taken to avoid a jackknife situation between the aircraft and the pushback vehicle due to asymmetric thrust from the aircraft (one engine running) during the transition from push to pull or vice versa. Do not exceed the manufacturer's maximum tow angles.



If the aircraft overtakes/pushes the pushback vehicle, the responsible ground staff member shall ensure they stay well clear of the path of the pushback vehicle and the aircraft NLG wheels.



Flight crew and aircraft maintenance staff must be informed if the aircraft overtakes/pushes the pushback vehicle, as both the pushback vehicle and the aircraft NLG may be damaged by the incident.

To relieve torsional stresses applied to the landing gear components and tires, move the aircraft in a straight line for a few meters to ensure the nose wheels are in the straight-ahead position when completing the pushback maneuver.



If the nose wheels are not in the centered position, they can turn quickly to their centered position when the steering bypass pin is removed. This can result in personal injury and aircraft damage.

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4.6.7.5 Manoeuvring During Wintery or Slippery Conditions

During adverse weather conditions (e.g., fog, rain, ice, snow), visibility and traction will be affected. The tractor driver shall reduce and adapt vehicle speed as required by the current conditions. When maneuvering the aircraft on slippery apron surfaces, extreme caution is required to avoid losing control of the tractor due to skidding, which may also lead to jackknifing (where the tractor is pushed around by the aircraft in an uncontrolled movement). Many elements can contribute to the hazards involved (i.e., strong winds, slippery road surfaces, pavement slopes). Therefore, the following minimum precautions must be observed:

a. Avoid sudden turns, deceleration or acceleration.
b. Except when using an ASU, do not start aircraft engines unless:
    1. The condition of the pavement is such that reasonable traction is ensured.
    2. The aircraft parking brake is set.
    3. The aircraft is disconnected from the tow tractor/TWL tractor.

4.6.7.6 Manoeuvring During Low-Visibility Conditions

a. Airport operators are responsible for developing low-visibility procedures that are relevant for the airport.
b. Ground handling staff shall be trained/authorized, as appropriate, prior to undertaking low-visibility aircraft ground movement operations.
c. Ground handling staff shall observe the movement limitations and other regulations applicable to the airport's low-visibility procedures at all times.
d. Pushback tractors should be equipped with an airfield map, where this is available.
e. If there is any doubt as to the exact position of the pushback tractor/aircraft, the tractor driver shall stop the tractor/aircraft and inform air traffic controller (ATC) immediately.



The responsible for the departure (headset operator) should be positioned outside the tractor at safety distance (refer to **4.6.7.3 - Staff Safety During Pushback Manoeuvre**) during:

1. Low-visibility conditions (heavy rain, fog, bad lighting)
2. Lack of sufficiently visible markings
3. Obstructions behind the pushback (e.g., GSE, light post)

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4.6.8 Engine Start

4.6.8.1 Communication During Engine Start

Coordinate the engine starting sequence with the flight crew by conducting a predeparture briefing and refer to the operating airline's instructions for specific engine start procedures.

a. During the engine start, communicate with the flight crew only if the responsible ground staff member observes circumstances that require immediate notification and action by the flight crew.
b. When starting up with an ASU, supply the pressure at the request of the flight crew.
c. If ramp conditions are below standard for a normal pushback (e.g., hazards, obstacles, slippery, icy), the in charge of pushback will inform the flight crew that engine start clearances will not be given until either:
    1. The aircraft is moving over an area of the ramp where the conditions are safe for an engine start, or
    2. The pushback has been completed, the aircraft has come to a complete stop and the parking brake has been set.

Note: From the flight crew seat facing forward, the engine on the left is referenced as engine number one.

4.6.8.2 Engine Start Using an Air Start Unit

a. Only staff and equipment involved in engine starting or aircraft pushback are permitted within the ERA during engine start.
b. Staff and equipment involved in the engine start shall remain clear of engine danger areas.
c. Establish communications with the flight crew and confirm the total number of engines to be started, the engine start sequence to be used, the number of ASUs being used and their positioning.
d. Advise the engine start sequence to the ASU operator(s) and any other ground staff.
e. Where possible, the ASU should be positioned on the opposite side of the aircraft to the engine being started.
f. If the aircraft is to be pushed back, connect the pushback tractor and set the tractor's parking brake, where this is possible without disconnecting ground electrical power.
g. If a pushback tractor is not connected, position a chock in front of the nose wheel.
h. Confirm with the flight crew that the aircraft parking brake is set, then remove main gear chocks.
i. The ASU operator shall ensure the unit is ready to supply air pressure.
j. The headset operator shall inform the flight crew that the ground crew are ready for engine start.
k. Prepare for engine(s) start (see **4.6.6.2 - Departure Communication Dialogue**, for communication requirements).
l. When engine start is complete, the headset operator shall signal the ASU and ground power operator(s) to disconnect the ASU and remove ground power.
m. Disconnect the ASU hose(s).
n. Close and latch external air start and electrical panels.



When connecting and disconnecting ASU hose(s), walk directly underneath the fuselage, or close alongside it, keeping clear of engine danger areas.

4.6.8.3 Engine Start Using Cross-Bleed

In some cases, the second engine will be started by flight crew using increased power from the first engine.

Engine start using cross-bleed can only be performed once the pushback has been completed, the aircraft brakes have been engaged, and the area around the aircraft is clear.



With engine(s) above idle thrust, blast and suction effects are greater.

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4.6.8.4 Communication During Fire

a. Engine Fire

The flight crew normally detects an engine or APU fire and will take action using the engine/APU fire extinguishing system. However, the responsible ground staff member shall alert the flight crew immediately via the headset if flames are noticed from the engine or engine pylon. If a headset is not available, the appropriate “Fire” hand signal must be used (see **3.4.7.10 - Fire**).

b. Engine Tailpipe/Exhaust Fire

If flames from the engine tailpipe are noticed during engine starting, the responsible ground staff member shall alert the flight crew immediately, as such a fire might not be detectable via temperature sensors and/or fire warning systems in the aircraft.



Do not fight engine fires with fire extinguishers on the ground when the flight crew is in the flight deck. The flight crew will take all necessary action.

4.6.9 Pushback Disconnection

4.6.9.1 Pushback Tractor and Tow Bar Disconnection

Ensure that the tension is released from the towbar before making an attempt to remove the towbar from the tractor and aircraft.

a. The responsible ground staff member shall remove the tow pin securing the towbar to the pushback tractor.
b. The Towbar shall be disconnected from the tractor before disconnecting from the aircraft (except where the towbar is specifically designed to be disconnected from the aircraft first).
c. The pushback tractor driver shall check that other staff are clear of the intended travel path and slowly drive the pushback tractor to a position in the aircraft's path and visible to the flight crew, if possible, ready for the towbar to be reconnected.
d. The responsible ground staff member shall disconnect the towbar from the NLG and reconnect to the pushback tractor and move clear of the pushback tractor, in view of the driver.
e. The responsible ground staff member shall give an “OK” signal to the pushback driver to confirm that the towbar is reconnected, and it is clear to drive away.
f. The pushback driver shall check that other staff are clear of the intended travel path and slowly drive the pushback tractor to a position visible to the flight crew until the responsible ground staff member on the interphone has disconnected and is in view of the flight crew.

4.6.9.2 Tow Barless Tractor/Remote-Controlled Tractor Disconnection

a. The pushback driver shall ensure the tractor wheels are centralized and lower the aircraft nosewheel and open the tractor cradle.
b. The pushback driver shall check that other staff are clear of the intended travel path and slowly drive the pushback tractor to a position in the aircraft's path and visible to the flight crew, ensuring that the wheel cradle is completely clear of the aircraft NLG before commencing a turn.
c. The pushback driver shall rotate the driver's seat to the direction ready to drive away, if applicable.
d. The pushback driver shall remain in a position visible to the flight crew until the responsible ground staff member on the interphone has disconnected and is in view of the flight crew.

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4.6.10 Pushback Completion

Pushback completion includes repositioning the pushback tractor, removing the nose gear steering bypass pin and displaying the steering bypass pin to flight crew, if equipped:

a. Remove the nose gear steering bypass pin and/or ensure the nose gear steering mechanisms are set to normal conditions for taxiing (as applicable to the aircraft type).
b. If previously disconnected, reconnect the torque link and inform flight crew.
c. Complete the headset communication and, after receiving flight crew approval, disconnect the headset and close the access panel (if applicable to the aircraft type).
d. Move clear of the aircraft to a safe position visible to the flight crew and away from its intended path.
e. Display the steering bypass pin to the flight crew (if applicable to aircraft type).
f. Give the “All Clear” signal (see **3.4.9.6 - All Clear**) once eye contact has been made with the flight crew and they are expecting the signal. In low-light conditions, the flight crew will turn on the interior lights of the flight deck.
g. Remain in position until an acknowledgement from the flight crew is received.
h. Drive the tractor back to the terminal, the appropriate holding position, or to the next task.



If the nose wheels are not in the centered position, they can turn quickly to their centered position when the steering bypass pin is removed. Personal injury and/or aircraft damage could result.
Do not disconnect the interphone communication cable until the towbar or TWL tractor has been disconnected from the nose gear.



After disconnection of the headset, no attempt shall be made to approach the aircraft unless cleared by the flight crew to do so via hand signals.

At least one staff member shall remain in attendance of the aircraft until such time it has moved away under its own power. The purpose of this is to ensure that, should there be an engine fire or other problem which may not be immediately obvious to the flight crew, ground staff can attract attention / communicate with the crew via hand signals. Conversely, should the flight crew experience any problems which are not immediate obvious to ground staff, they can pass alerts or communicate using hand signals.

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4.6.11 Incidents During Pushback

4.6.11.1 Incidents During Pushback Involving Pushback Tractor/Tow Bar or Tow Barless Tractor

The list of incidents below outlines the recommended actions to be undertaken immediately by flight crew and/or tractor drivers in the event of an incident during the pushback operation. The list of incidents is not exhaustive, and the recommended actions should only be applied if they are deemed the safest course of action given the exact circumstances of the incident. If airport and/or operating airline procedures differ from the recommended actions below, those shall be followed.

Flight Crew	Tractor Driver
Tractor Failure	
a. Inform ATC. b. Apply the aircraft parking brake. c. Listen to VHF and wait for assistance. d. Relay information from ATC to headset operator.	a. Stop aircraft/tractor set. b. Apply tractor parking brake. c. Inform the flight crew. d. Contact supervision and equipment maintenance to advise of the situation, as required. e. Follow instructions received from headset operator, as applicable. f. If the TWL/towbar connection with the tractor needs to be reset (i.e., removed and reconnected), the aircraft shall be chocked while the tractor is being replaced.
Tractor/Aircraft Separation	
a. Apply the aircraft brakes. b. As soon as the aircraft is at a standstill, apply the aircraft parking brake before releasing the pedal. c. Inform ATC. d. Relay information received from ATC to headset operator, if applicable.	a. Do not apply tractor brakes. b. Inform the flight crew of separation. c. Follow the aircraft path attentively and stop the tractor according to the aircraft position. d. Apply the tractor parking brake. e. Confirm the aircraft parking brake is set then chock the aircraft. f. Assess the reason for the separation. g. Contact supervision, equipment maintenance and aircraft maintenance to advise of the situation, as required. h. Follow instructions and/or complete pushback maneuver, as applicable.
Tow Bar/Shear Pin Failure (remains attached to the aircraft)	
a. Apply the aircraft parking brake. b. Inform ATC. c. Relay information received from ATC to headset operator, if applicable.	a. Stop aircraft/tractor set. b. Apply the tractor parking brake. c. Inform the flight crew of the towbar/shear pin failure. d. Contact supervision, equipment maintenance and aircraft maintenance to advise of the situation, as required. e. Chock the aircraft and replace the towbar. f. Complete the pushback maneuver.
Pushback Tractor Fire	
a. Inform ATC and headset operator. b. Apply the aircraft parking brake. c. Determine the need for aircraft emergency evacuation and confirm to ATC and headset operator.	a. Inform the flight crew. b. Stop aircraft/tractor set immediately. c. Conduct an assessment of the situation and consider tackling the fire with the onboard tractor firefighting equipment only if it is deemed safe to do so. d. Consider disconnecting and moving the tractor to a safe distance from the aircraft, if deemed safe and appropriate to do so. e. Contact supervision, equipment maintenance and emergency services to advise of the situation, as required. f. If flight crew confirm emergency evacuation, assist in the evacuation as far as is possible/practical by directing passengers/crew toward a safe location.
Aircraft Fire	
a. Inform ATC and headset operator. b. Apply the aircraft parking brake. c. Execute onboard emergency procedures.	a. Stop aircraft/tractor set immediately. b. Inform the flight crew. c. If safe to do so, disconnect and move the tractor to a safe distance from the aircraft, where possible. d. If safe to do so, headset operator should maintain communication with the flight crew and follow instructions. e. Contact supervision and emergency services to advise of the situation, as required. f. If flight crew confirm emergency evacuation, assist in the evacuation as far as is possible/practical by directing passengers/crew toward a safe location.
Accident with Other Aircraft or Vehicle	
a. Contact ATC stating position and nature of the accident. b. Listen to VHF and wait for assistance. c. Relay information received from ATC to headset operator, if applicable.	a. Stop aircraft/tractor set immediately. b. Apply tractor parking brake. c. Inform the flight crew. d. Contact supervision, aircraft maintenance, equipment maintenance and emergency services to advise of the situation, as required. e. Follow instructions received from the headset operator and/or wait for assistance. f. Do not disconnect the tractor unless specifically instructed to do so by the headset operator and/or ATC. g. If disconnecting the tractor, the aircraft must be chocked.
Interphone Communication Failure	
If during the pushback operation the interphone fails, the aircraft must be immediately stopped and an alternate means of communication established before continuing. If this is not possible, assistance must be requested.	
Visual Contact with the Wing Walkers Is Lost (if used)	
In the event that the tractor driver is unable to establish visual contact with one or both of the wing walkers, when used, the pushback shall be stopped and not recommence until visual contact is reestablished.	

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4.6.12 Reestablishing Communication After Departure

4.6.12.1 Introduction

The following procedure is to be used when the responsible ground staff member or flight crew need to reestablish interphone communication after it has been disconnected.

4.6.12.2 Initiated from the Flight Deck

The flight crew sets the parking brake and reestablishes communication with the responsible ground staff member via a company channel or ATC. If visual communication with the responsible ground staff member is still established, visual signals may be used.

4.6.12.3 Initiated from the Ground

If the responsible ground staff member needs to reestablish communication with the aircraft after dispatch, do not approach the aircraft. If communication cannot be established using hand signals, make contact via a company channel or ATC.

When preparing to reestablish communication with the aircraft, the responsible ground staff member shall take the following precautions:

a. Make sure the responsible ground staff member has been seen by the flight crew and the intention to approach the aircraft to reestablish interphone communication is understood.
b. Approach the aircraft from the direction where visual contact with the flight crew is maintained for as long as possible.
c. Only the responsible ground staff member establishing the interphone communication shall approach the aircraft.
d. Stay outside the aircraft's engine danger areas when approaching the aircraft.
e. If possible, position the pushback tractor in front of the aircraft in clear view of the flight crew to act as a safety barrier and prevent premature movement of the aircraft.



For safety reasons, the interphone communication system cannot be used when there is thunderstorm activity over the airport as there is a risk of electrical discharges between the aircraft and the interphone system. Under these conditions, communication headsets cannot be worn.

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4.7 Open Ramp Departure

An open ramp is a taxi-in and taxi-out operation area. In some locations, the aircraft may be towed from an open ramp to a taxiway, prior to engine start.

a. Complete all predeparture checks.
b. Refer to Departure Communication (**4.6.6.2 - Departure Communication Dialogue**) and follow the required phases of dialogue.
c. Ensure all staff and equipment is clear of the aircraft and outside the ERA or Circle of Safety.
d. Position for marshalling in an area behind the ERA while being in clear view of the flight crew on either side of the aircraft, depending on facility.

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4.8 Aircraft Powerback Operations

Aircraft powerback is not approved for normal operations; therefore, it shall only be carried out within the limitations set out by, and with the approval of, the respective local authorities, the aircraft operator, and Regional Airside.

It shall be conducted based on the risk assessment process and in accordance with specific operating airline procedures at all times, taking into consideration the following recommendations:

a. Ground staff members required for powerback (e.g., marshaller, wing walkers).
b. The air intake and blast areas of the aircraft engines are clear of staff and obstacles, such as GSE.
c. Identifying the person in charge of the powerback process.
d. Wired headset shall not be used for powerback operations.
e. The ground staff members engaged in powerback operations shall wear, in addition to their normal PPE, protective goggles.
f. If an ASU is required, check that the equipment is correctly positioned and suitable for the operation.
g. If an engine start with ASU is undertaken, communicate to confirm ASU positioning and engine start sequence with the flight crew.
h. Powerback operations shall not be conducted if any one of the following conditions exist:
    1. The airport does not authorize powerback operations.
    2. The departure gate is not approved for powerback operations.
    3. If any member of the ground staff is not properly protected.
    4. The entire area of the operation is not adequately illuminated.
    5. Visibility is restricted due to weather conditions.
    6. An accumulation of ice, snow, slush or any other obstruction is on the apron.
    7. Verbal agreement is not reached between the responsible ground staff member and the flight crew.

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4.9 Aircraft Towing

4.9.1 Introduction

Aircraft towing may be carried out for three reasons:

a. Maintenance Towing

Towing an aircraft without passengers, without cargo and with minimum fuel on board.

b. Operational/Dispatch Towing

Towing an aircraft loaded with passengers and/or fuel and/or cargo to/from the terminal gate or parking area to/from a remote location.

c. Repositioning Towing

Movement of an aircraft to/from a remote parking area with/without cargo or fuel.

4.9.2 Ground Staff Member Responsibilities

4.9.2.1 Responsible Ground Staff Member for Towing

The responsible ground staff member is defined as the person who has overall responsibility for the towing maneuver and is normally the pushback tractor driver, although the function may be performed by different ground staff members in different roles.

The responsible ground staff member in charge of each towing maneuver shall check to ensure all requirements for the towing operation are met prior to commencing towing operations.

See **4.6.2.2 - Pushback Tractor Driver** for responsibilities.

See **4.6.2.3 - Wing Walker** for responsibilities.

4.9.2.2 Brake Operator

Where applicable, in accordance with local procedures, the brake operator shall:

a. Be responsible for communication with ATC.
b. Complete a flight deck checklist for towing (refer to the operating airline's instructions).
c. Ensure all aircraft doors are closed by authorized staff.
d. During towing, the brake operator must be seated with the seat belt fastened.
e. Apply the “Brakes On” and “Brakes Off”. procedures in coordination with the headset operator.
f. Switch on and switch off the external anti-collision lights of the aircraft.
g. Position the seat in such a way that the brakes can be easily applied when required.
h. Inform the headset operator immediately if potential contact with any object(s) is detected.
i. Only apply the brakes during the tow when instructed by the headset operator/tractor operator or when it is clear the aircraft has become separated from the tractor.

Notes:

1. For procedures related to incidents during towing (see **4.9.5 - Towing Completion**).
2. Presence on board of staff, other than the brake operator, is forbidden throughout the maintenance or repositioning towing operations, except for flight crew and maintenance staff. The brake operator must inform them that they must be seated with the seat belt fastened and must follow his safety orders if necessary.

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4.9.2.3 Headset Operator

The headset operator is responsible for communications with the brake operator and/or VHF operator.

4.9.2.4 VHF Operator

The VHF operator is responsible for communications with ATC and/or ground movement control (GMC).

Note: The VHF operator may be positioned in the pushback tractor or on the flight deck depending on the ground staff member functions carrying out the towing maneuver.

4.9.3 Pre-Towing Activities

4.9.3.1 General

The following requirements shall be met to perform an aircraft tow:

a. Carry out a predeparture walkaround in accordance with **4.6.3.1 - Predeparture Walkaround Check**.
b. Carry out the requirements, as identified in the predeparture table in **4.6.3.2 - Predeparture Table**, that are relevant to the towing maneuver.
c. Make sure the flight crew or a qualified brake operator (VHF operator where required) is in the flight deck, if applicable.

> When using a TWL for positioning aircraft over short distances, the requirement for flight crew or a brake operator to be in the flight deck may be withdrawn. Approval is required from the operator and Regional Airside.

d. Communication shall be established between the headset operator and the flight crew, brake operator (VHF operator, where required), if applicable.
e. The responsible ground staff member shall conduct a briefing with all persons involved in the aircraft movement to review and confirm how the aircraft will be maneuvered.
f. Ensure the hydraulic system pressure for aircraft braking and/or brake accumulator is within the required pressure range. Refer to the operating airline's instructions for each aircraft type for details.
g. Ensure any electrical systems required for towing are energized.
h. Ensure all landing gear safety pins are installed. After the tow, ensure all pins are removed and stowed. Refer to the operating airline's instructions regarding landing gear safety pin responsibilities and requirements.
i. Connect the pushback tractor/equipment in accordance with the relevant instructions contained in **4.6.4 - Connecting the Pushback Vehicle**.
j. Remove the wheel chocks once ready to do so in accordance with **4.6.5 - Wheel Chock Removal**.



Inform the brake/VHF operator, headset operator and/or maintenance department for technical inspection if anyone:

1. Observes any type of excessive fluid leakage.
2. Notices any signs of unmarked aircraft damage.
3. Observes any fault, failure, malfunction or defect that may affect the safe operation of the aircraft for the intended flight.

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4.9.3.2 Pre-Towing Preparation

The following checklist is to be used in preparation for an aircraft tow:

Action	Performed by	
	Brake Operator	Tractor Driver
Apply the flight deck checklist for towing. Refer to the operating airline's instructions for details.	X	X
Test the means of communication between the tractor and flight crew.	X	X
Insert the steering bypass pin and deactivate steering.	X	X
Give permission to connect the towbar and tractor or TWL tractor after applying the aircraft parking brake.	X	
Install the landing gear safety pins, if required by operating airline procedures.	X	X
Connect the towbar, first to the aircraft, then to the tractor and set the parking brake.		X
Before connecting the TWL tractor, ensure the aircraft MLG are symmetrically chocked.		X
Connect the TWL tractor and set the parking brake.		X
Once all GSE has been cleared away from the aircraft, remove or check removal of aircraft chocks.		X
Ensure the aircraft is clearly visible to other parties according to local regulations, especially after dark (e.g., switch on external anti-collision lights).	X	
Contact the ATC for clearance to start moving the aircraft (depending on local regulations).	X	X
After receiving clearance, release the aircraft parking brake.	X	
Give clearance and instruction to the tractor driver to start moving the aircraft.	X	
Request confirmation from the brake operator that the aircraft parking brake has been released.		X
Conduct Tow		X

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4.9.3.3 Towing Communications

An aircraft towing maneuver shall always be conducted using interphone communications or hand signals when the brake/VHF operator is present. Certain airlines may have specific requirements for their towing communications that may vary from those described below. If available, refer to the operating airline's instructions; otherwise, this communication standard shall apply. The specific dialogue contained herein does not forbid the exchange of additional important information between the brake/VHF operator and ground staff using non-standard phraseology (e.g., request for authorization to disconnect ground support units).

Additionally, two-way radio communication shall be maintained between aircraft/tractor set and ATC, except when under escort by an airport operations or emergency vehicle. Always follow local airport regulations for communication and aircraft movement operations.

Dialogue between Ground Staff and Brake/VHF Operator		
Phase	**Ground Staff**	**Brake/VHF Operator**
Predeparture Check	Call: CONFIRM PARKING BRAKE SET	
		Reply: PARKING BRAKE SET
		Call: CONFIRM STEERING BYPASS PIN INSERTED/NOSE WHEEL STEERING DEACTIVATED/LANDING GEAR SAFETY PINS (if applicable)
	Reply: STEERING BYPASS PIN INSTALLED/NOSE WHEEL STEERING DEACTIVATED/LANDING GEAR SAFETY PINS (if applicable)	
		Call: CONFIRM CLEAR TO PRESSURIZE (if applicable)
	Reply: CLEAR TO PRESSURIZE (if required)	
	Call: Request permission to connect the towbar and tractor or TWL tractor	
		Call: CLEAR TO CONNECT (towbar and tractor or TWL tractor)
	Call: CONNECTING	
After completion of the predeparture check	Call: PREDEPARTURE CHECKS COMPLETED	
		Reply: ROGER
	Call: ELEVATING AIRCRAFT (TWL tractor)	
	Call: READY FOR TOWING	
		Reply: STANDBY
Towing	REQUEST TOW (company name, aircraft type) FROM (location) TO (location)	
		Call: TOW APPROVED VIA (mention specific routing to be followed).
	Call: CONFIRM PARKING BRAKE RELEASED	
		Reply: PARKING BRAKE RELEASED
	Call: COMMENCING TOWING (mention specific routing to be followed)	
Towing Completed	Call: TOWING COMPLETED, SET PARKING BRAKE	
		Reply: PARKING BRAKE SET
Disconnecting	Call: AIRCRAFT CHOCKED	
		Call: CLEAR TO DISCONNECT
	Reply: DISCONNECTING	
	Call: TOWBAR/TRACTOR DISCONNECTED	

All given instructions must be read back or acknowledged in a manner clearly indicating that they have been understood and will be complied with.

When interphone communication is not possible, standard hand signals must be used for communication between the tractor driver and brake operator. Such communication may occur only when the aircraft has stopped.

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4.9.4 Towing Manoeuvre

4.9.4.1 General

See **4.6.7 - Pushback Manoeuvre** for pushback phase of the towing maneuver.

a. Use relevant apron lines as guidance during maneuvering to ensure safe obstacle clearances. Be aware of the size of the towed aircraft.
b. Keep a minimum safety distance between vehicles to allow sufficient space to stop. Where required, apply the pushback tug brakes gently.
c. Stop 50 m (55 yd.) before a taxiway intersection if a stop is required.
d. Relieve torsional stresses applied to the landing gear components and tires by moving the aircraft in a straight line for a few meters to ensure the nose wheels are in the straight-ahead position when arriving at the allocated/relevant parking position.

4.9.4.2 Towing Speeds

Aircraft weight, tractor performance and airfield topography can affect towing speeds. Towing speeds shall be kept to a minimum and shall not exceed the towing speed limit as regulated by the towing equipment, aircraft and airport.

If requested by ATC/GMC to “Expedite” due to a live runway crossing, ATC must be informed if this is not possible. ATC/GMC shall also be informed if towing speeds are restricted when towing on live taxiways, as this can lead to congestion on the airfield.

Extreme caution must be exercised and speed reduced when towing on a down slope to avoid jack-knifing or the aircraft ‘overtaking’ the tractor. Should the aircraft start to push, or ‘overtake’ the tractor, the cockpit must be immediately advised to slow the aircraft using gentle braking.

4.9.4.3 Towing Limits

Fuel and other loads can affect an aircraft's balance. To avoid tail tipping during towing, ensure the actual center of gravity of the aircraft is forward of the critical center of gravity. If unable to determine this, the responsible ground staff member must request assistance from qualified weight and balance staff of the operating airline.

Notes: For information relating to requirements and precautions that shall be taken when aircraft towing maneuvering takes place during adverse conditions, refer to the following sections, as applicable:

1. Wintery or Slippery Conditions (see **4.6.7.5 - Manoeuvring During Wintery or Slippery Conditions**)
2. Low-Visibility Conditions (see **4.6.7.6 - Manoeuvring During Low-Visibility Conditions**)

4.9.4.4 Towing onto Parking Stand

Immediately prior to the aircraft being towed onto the stand or gate, the responsible ground staff member shall check and confirm that the area is ready (e.g., clear of obstacles, equipment, FOD, wing walkers, if required).

4.9.4.5 Movement Into/Out of Hangars

a. Only those ground staff members trained and qualified in the movement of aircraft into/out of hangars shall perform this operation and a person in charge of the operation must be designated.
b. Sufficient ground staff (wing/tail walkers) shall be assigned to the operation to ensure clearances between the aircraft and objects in the hangar are maintained.
c. The method of communication between the ground staff members involved in the aircraft movement into/out of the hangar shall be agreed upon before any movement is started by means of a briefing conducted by the responsible ground staff member in charge of the operation.
d. Floor markings and stop signs shall be in accordance with the aircraft type operating into/out of the hangar.

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4.9.5 Incidents During Towing

Brake/VHF Operator	Tractor Driver
VHF Communication Failure	
a. Set the aircraft parking brake. b. Communicate the issue to ATC. c. Relay appropriate information received from ATC to the headset operator. d. Continue to monitor the ATC frequency and maintain communications with the headset operator/tractor driver. e. Release the parking brake prior to recommencement of the towing maneuver.	a. Stop aircraft/tractor set as soon as it is safe to do so. It is not safe to stop on an active runway. b. Apply tractor parking brake. c. Communicate the issue to the brake/VHF operator. d. Attempt to contact ATC via alternative frequency/means. e. Await assistance (e.g., from “Follow Me” vehicle) before completing the towing maneuver. f. After completion of the towing maneuver, report VHF failure to equipment maintenance and follow instructions accordingly.
Tractor Failure	
a. Inform ATC. b. Set the aircraft parking brake. c. Listen to VHF and wait for assistance. d. Relay information from ATC to headset operator/tractor driver.	a. Stop aircraft/tractor set. b. Apply tractor parking brake. c. Inform the brake/VHF operator. d. Inform ATC (TWL towing with one-person operation). e. Contact supervision and equipment maintenance to advise of the situation, as required. f. Follow instructions received from headset/brake operator, as applicable. g. Listen to VHF (TWL towing with one-person operation). h. If the TWL/towbar connection with the tractor needs to be reset (i.e., removed and reconnected), the aircraft shall be chocked while the tractor is being replaced.
Tractor/Aircraft Separation	
a. Apply the aircraft brakes. b. As soon as the aircraft is at a standstill, apply the aircraft parking brake before releasing the pedal. c. Inform ATC. d. Relay information received from ATC to the headset operator/tractor driver, if applicable.	a. Do not apply tractor brakes. b. Inform the brake/VHF operator of the separation. c. Follow the aircraft path attentively and stop the tractor according to the aircraft position. d. Apply the tractor parking brake. e. Confirm the aircraft parking brake is set, then chock the aircraft. f. Assess the reason for the disconnection. g. Contact supervision, equipment maintenance and aircraft maintenance to advise of the situation, as required. h. Follow instructions to complete the towing maneuver, as applicable.
Towbar/Shear Pin Failure (remains attached to the aircraft)	
a. Apply the aircraft parking brake. b. Inform ATC. c. Relay information received from ATC to the headset operator/tractor driver, if applicable.	a. Stop the aircraft/tractor set. b. Apply the tractor parking brake. c. Inform the brake/VHF operator of the towbar/shear pin failure. d. Contact supervision, equipment maintenance and aircraft maintenance to advise of the situation, as required. e. Chock the aircraft and replace the towbar. f. Follow instructions to complete the towing maneuver.
Pushback Tractor Fire	
a. Inform ATC and headset operator/tractor driver. b. Apply the aircraft parking brake. c. Determine the need for aircraft emergency evacuation and confirm to ATC/headset operator/tractor driver.	a. Inform the brake/VHF operator. b. Stop the aircraft/tractor set immediately. c. Conduct an assessment of the situation and consider tackling the fire with the onboard tractor firefighting equipment, only if it is deemed safe to do so. d. Consider disconnecting and moving the tractor a safe distance from the aircraft, if deemed safe and appropriate to do so. e. Contact supervision, equipment maintenance and emergency services to advise of the situation, as required. f. If the brake/VHF operator confirms emergency evacuation, assist in the evacuation as far as is possible/required.
Aircraft Fire	
a. Inform ATC and the headset operator/tractor driver. b. Apply the aircraft parking brake. c. Fight the fire with the onboard extinguisher, where possible. e. Evacuate the aircraft using onboard means, if required.	a. Stop the aircraft/tractor set immediately. b. Inform the brake/VHF operator. c. If safe to do so, disconnect and move the tractor to a safe distance from the aircraft, where possible. d. If deemed safe to do so, the headset operator/tractor driver should maintain communication with the brake/VHF operator and follow instructions. e. Contact supervision and emergency services to advise of the situation, as required. f. If brake/VHF operator confirms emergency evacuation, assist in the evacuation as far as is possible/required.
Accident with Other Aircraft or Vehicle	
a. Contact ATC stating position and nature of the accident. b. Listen to VHF and wait for assistance. c. Relay information received from ATC to headset operator/tractor driver, if applicable.	a. Stop the aircraft/tractor set immediately. b. Apply tractor parking brake. c. Inform the brake/VHF operator. d. Contact supervision, aircraft maintenance, equipment maintenance and emergency services to advise of the situation, as required. e. Follow instructions received from the headset/brake operator and/or wait for assistance. f. If disconnecting the tractor, the aircraft must be chocked.
Interphone Communication Failure	
If during the towing operation the interphone fails, the aircraft must be immediately stopped and an alternate means of communication established before continuing. If this is not possible, assistance must be requested.	
Visual Contact with Wing Walkers and/or Marshaller Is Lost (if used)	
In the event that the tractor driver is unable to establish visual contact with one or both of the wing walkers or the marshaller, when required, the towing maneuver shall be stopped and not recommence until visual contact is reestablished.	

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4.9.6 Towing Completion

The following checklist is to be used at the end of an aircraft tow.

Action	Performed by	
	Brake Operator	Tractor Driver
Set tractor parking brake.		X
Request the brake operator to set the aircraft parking brake.		X
Inform ATC that towing is completed, and the frequency will be left, depending on local regulations.	X	X
Set the aircraft parking brake and check the pressure. Inform the tractor driver: “Parking Brake Set, Pressure Checked”.	X	
Chock the aircraft MLG .		X
Switch off the external anti-collision lights of the aircraft.	X	
Inform the brake operator: “Aircraft chocked”.		X
Give permission to disconnect the towbar or TWL tractor. Disconnect the tractor ground power, where applicable.		X
Disconnect the towbar (disconnecting from the pushback tractor first, then the aircraft) or TWL tractor.		X
Remove the steering bypass pin and activate steering.		X
Place additional chocks, where applicable.		X
Inform the brake operator: “Towbar/Tractor Disconnected”.	X	
Release the aircraft parking brake and inform the tractor operator: “Parking Brake Off” (where applicable).		X
After permission from the brake operator, shut down and disconnect the tractor GPU.		X
Install and connect a GPU.	X	
If installed, remove and stow gear safety pins in the dedicated location.		X

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4.10 Long-Term Parking for Aircraft

4.10.1 Introduction

Successful execution of the long-term parking operation, as well as the recovery and reintroduction of the aircraft back into service after long-term parking, requires close coordination and cooperation between all the relevant airside and aviation stakeholders, including (but not limited to) the aircraft operator, airport authority, GHSP and maintenance provider.

In anticipation of the possible long-term parking of multiple aircraft, ground service providers shall proactively engage with the relevant stakeholders to develop a long-term parking plan. This plan shall be regularly reviewed (minimum once per year) to ensure the plan is still valid. The plan will require ad hoc review in response to changes to the airside environment, such as changes to operators, aircraft types and numbers, airport layout, GHSPs, and manufacturers' Aircraft Maintenance Manual (AMM). Depending on each airport's emergency plan, the airport may require the aircraft to proceed to a designated bay, possibly a remote bay, according to its plans and requirements.

The long-term parking plan shall ensure:

a. Spacing between adjacent aircraft.
b. When not parked at a bay (e.g., taxiway), aircraft are parked facing into the prevailing wind.
c. Anchor points are available for high-wind conditions.
d. Processes to monitor and adjust for severe weather conditions.



In regions with hot climates, it is preferable to park aircraft on hard surfaces such as concrete or high module asphaltic material rather than on flexible surfaces such as bituminous asphalt. This will avoid indenting those areas during long parking periods.

When an aircraft is parked for more than 6 hours (i.e. day stops), the following actions shall be taken:

- Apply additional main gear chocking (See **4.2.2 - Chock Placement Diagrams**)
- Load ballast ULDs, if required
- Close and secure all doors
- Remove all GSE, in order to prevent unauthorized access of persons and contact between GSE and the aircraft
- Fit engine blanking covers, where provided by the operator
- Fit pitot covers, where provided by the operator

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4.10.2 Aircraft Movement

Based on the airport parking plan, once resumption of operations begins, it is important to ensure there is a well-coordinated aircraft movement plan to ensure there is no damage to the aircraft.

Notes:

1. Ensure all procedures during aircraft ground movement are adhered to as documented in **4.6 - Aircraft Departure** to **4.9 - Aircraft Towing**.
2. Ensure during any abnormal operations, a robust safety risk assessment is performed, and implementation of the mitigation plan is followed.
3. Ensure timely consultation with the airport operator regarding the aircraft movement.
4. If any surface damage is observed, liaise with the airport management team as per the airport's directives.

After long-term parking, anticipate extra pull or push force required for aircraft wheels to exit any indentations in the pavement and/or to overcome the aircraft tires being out of round. This is to avoid shear pin breakage and/or sudden movement in direction of travel. Refer to the pushback and pull forward procedure in **4.6.7.4 - Pushback and Pull Forward**.

Long-term parking of aircraft requires a variety of specific measures to be in place to ensure the continued safety, security and general airworthiness of the aircraft. These measures are specific to both manufacturer and aircraft type, refer to the operator’s instructions.

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A	Alfa
B	Bravo
C	Charlie
D	Delta
E	Echo
F	Foxtrot
G	Golf
H	Hotel
I	India
J	Juliet
K	Kilo
L	Lima
M	Mike
N	November
O	Oscar
P	Papa
Q	Quebec
R	Romeo
S	Sierra
T	Tango
U	Uniform
V	Victor
W	Whiskey
X	X-Ray
Y	Yankee
Z	Zulu

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AIRCRAFT DAMAGE INSPECTION SHEET

DATE	TAIL # (1)	INBOUND GATE (2)	INBOUND FLIGHT # (3)
GROUND CREW TEAM # (4)	AIRCRAFT TYPE	OUTBOUND GATE	OUTBOUND FLIGHT #

EXTERNAL CHECK (5)

Inbound N/A	Inbound OK	Inbound Not OK	Inbound Printed Initials	Check Area	Outbound Printed Initials	Outbound OK	Outbound Not OK	Outbound N/A
	☐	☐		L1 and/or R1 Door		☐	☐	
☐	☐	☐		Main Cargo Door		☐	☐	☐
☐	☐	☐		Bulk Cargo Door		☐	☐	☐
☐	☐	☐		AFT Lower Cargo Door		☐	☐	☐
☐	☐	☐		FWD Lower Cargo Door		☐	☐	☐
☐	☐	☐		Door Seal Suppressors MD		☐	☐	☐
☐	☐	☐		Door Seal Suppressors LD		☐	☐	☐
	☐	☐		External Other		☐	☐	

Comments *(describe the issue, who was notified and record the Occurrence Number where possible)* (6) _____

INTERNAL CHECK – MAIN DECK

Inbound N/A	Inbound OK	Inbound Not OK	Inbound Printed Initials	Check Area	Outbound Printed Initials	Outbound OK	Outbound Not OK	Outbound N/A
☐	☐	☐		Cargo Floor / Ball Mat		☐	☐	☐
	☐	☐		Locks, Rails or Nets		☐	☐	
	☐	☐		Internal Lining		☐	☐	
☐	☐	☐		9G Net/Barrier		☐	☐	☐
	☐	☐		Internal Other		☐	☐	

Comments *(describe the issue, who was notified and record the Occurrence Number where possible)* _____

INTERNAL CHECK – LOWER DECK & BULK COMP.

Inbound N/A	Inbound OK	Inbound Not OK	Inbound Printed Initials	Check Area	Outbound Printed Initials	Outbound OK	Outbound Not OK	Outbound N/A
	☐	☐		Locks or Nets		☐	☐	
	☐	☐		Internal Lining		☐	☐	
	☐	☐		Cargo Floor / Ball Mat		☐	☐	
	☐	☐		Internal Other		☐	☐	

Comments *(describe the issue, who was notified and record the Occurrence Number where possible)* _____

NOTE: If any checks have been marked "Not OK", please complete an Occurrence Report in IQSMS.

I certify that an Aircraft Damage Inspection has been completed, and that rails have been retracted and brake tests performed on all crew steps, Hi-Loaders / K-Loaders and Belt Loaders used for the turnaround of this aircraft prior to positioning at the aircraft.

Inbound	(7)	Outbound
Printed Name: _____		**Printed Name:** _____
Signature: _____		**Signature:** _____

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Elements of Aircraft Damage Inspection Sheet

1. Tail #	Aircraft Tail Number or Aircraft Registration
2. Inbound Gate / Outbound Gate	Parking stand number for the inbound flight (flight arriving at your location) and for the outbound flight (flight departing your location)
3. Inbound Flight # / Outbound Flight #	Flight number for the inbound flight (flight arriving at your location) and for the outbound flight (flight departing your location)
4. Ground Crew Team #	Number / Identifier of the turnaround crew/team assigned to work the aircraft (if applicable)
5. Printed Initials	First letter of the name and first letter of the surname of the person who completed the check (E.g. initials for Joe Bloggs are JB)
6. Comments	If a damage has been found, a detailed explanation of the damage and any immediate actions taken must be entered in the Comments.
7. Printed Name and Signature	The person responsible for the Aircraft Damage Inspection must print their name and sign the sheet for the Inbound and/or Outbound flight. By signing the sheet, you are certifying that an Aircraft Damage Inspection has been completed, and that rails have been retracted and brake tests performed on all crew steps, Hi-Loaders/K-Loaders and Belt Loaders used to service the aircraft prior to positioning at the aircraft.

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